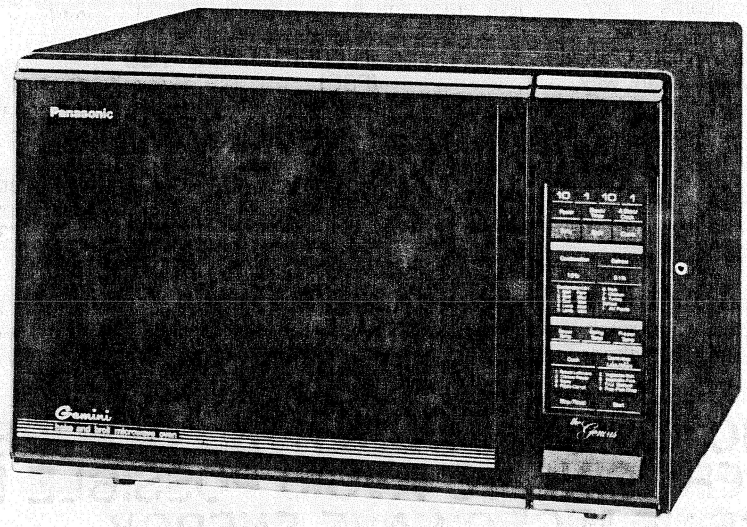
ORDER NO. MOD88090
E1

Service Manual

Microwave Oven

NN-8508, NN-8558
NN-8808, NN-8858
NN-8808P



Specifications

Power Source :	120 V AC Single Phase 60 Hz (50/60 Hz for NN-8808P only)
Power Requirement :	1,400 W (12.2 A)·····Microwave 1,500 W (12.5 A)·····Bake and Broil
Output :	700 W·····Full Microwave Power 1,400 W·····Heater
Microwave Frequency :	2,450 MHz
Timer :	99 Min. 99 Sec./9 Hr. 99 Min.
Outside Dimensions :	22" (W) × 17-1/4" (D) × 15-3/16" (H) 558 mm (W) × 439 mm (D) × 385 mm (H)
Oven Cavity Dimensions :	14-7/16" (W) × 14-5/8" (D) × 9-1/8" (H) 367 mm (W) × 372 mm (D) × 232 mm (H)
Weight :	55 lbs (24.5 kg)
Specifications subject to change without notice.	

Panasonic®

Matsushita Services Company
50 Meadowland Parkway,
Secaucus, New Jersey 07094

Panasonic Hawaii, Inc.
99-859 Iwaiwa Street
P.O. Box 774
Honolulu, Hawaii 96808-0774

Matsushita Electric of Canada Limited
5770 Ambler Drive,Mississauga,
Ontario, L4W 2T3

Panasonic Sales Company, Division of Matsushita Electric of Puerto Rico, Inc.
Ave, 65 De Infanteria, KM 9.7
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NN-8508, NN-8558
NN-8808, NN-8858
NN-8808P

This service manual covers products for following markets.
When troubleshooting or replacing parts, please refer to the country identifications shown below for your applicable product specification.
APH·····For U.S.A. and some of Latin America countries
CPH·····For Canada

WARNING

1. This product should be serviced only by trained qualified personnel.
2. Though this product has been manufactured in compliance with:
   "Federal Performance Standard 21 CFR Subchapter J" (D.H.H.S.): U.S.A. models
   or "Radiation Emitting Devices Act" (NHW): Canadian models
   it is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage after every servicing according to the "procedure for measuring radiation leakage" on page 24.
4. Any serviceman who learns of any accident pertaining to microwave radiation leakage should immediately notify the appropriate address listed below.

IN U.S.A. (MSC)	Matsushita Services Company 50 Meadowland Park way, Secaucus, New Jersey 07094 Attention: Engineering Support Division. (201) 348-7000	IN PUERTO RICO (PSC)	PSC Ave. 65 De Infanteria, KM 9.7 Victoria Industrial Park Carolina, Puerto Rico 00630 (809) 750-4300
IN HAWAII (PHI)	PHI 99-859 Iwaiwa Street P.O. Box 774 Honolulu, Hawaii 96808-0774 (808) 488-7779	IN CANADA (MELCA)	Matsushita Electric of Canada Limited 5770 Ambler Drive, Mississauga, Ontario, L4W2T3 (416) 624-5010

5. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent microwave leakage, shock, fire, or other hazards. Do not modify the original design.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO AVOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENERGY

(A) Do not operate or allow the oven to be operated with the door open.
(B) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
   (1) Interlock operation
   (2) Proper door closing
   (3) Seal and sealing surfaces (arcing, wear, and other damage)
   (4) Damage to or loosening of hinges and latches.
   (5) Evidence of dropping or abuse
(C) Before turning on microwave power for any service test or inspection within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for proper alignment, integrity and connections.
(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedures described in this manual before the oven is released to the owner.
(E) A microwave leakage check to verify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

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FEATURE CHART

MODEL / FEATURE	NN-8508 NN-8558	NN-8808 NN-8858 NN-8808P
CYCLIC DEFROST	○	○
THREE STAGE COOKING	○	○
AUTO WEIGHT DEFROST	○	○
AUTO SENSOR COOK	—	○
AUTO SENSOR REHEAT	—	○
AUTO REHEAT	○	—
AUTO WEIGHT COMBINATION COOKING	○	○
COMBINATION — TIME COOKING	○	○
BAKING — AUTO PREHEATING	○	○
BAKING — TIME COOKING	○	○
BROILING — AUTO PREHEATING	○	○
BROILING — TIME COOKING	○	○
STAND/TIMER	○	○
AUTO START	○	○
DIGITAL CLOCK	○	○

PRODUCT DESTINATION

MODEL	U.S.A. etc	CANADA
	APH	CPH
NN-8508	○	—
NN-8558	—	○
NN-8808	○	○
NN-8858	○	—
NN-8808P	※※	

※※For U.S. Military Market

LOCATION OF NAMEPLATE

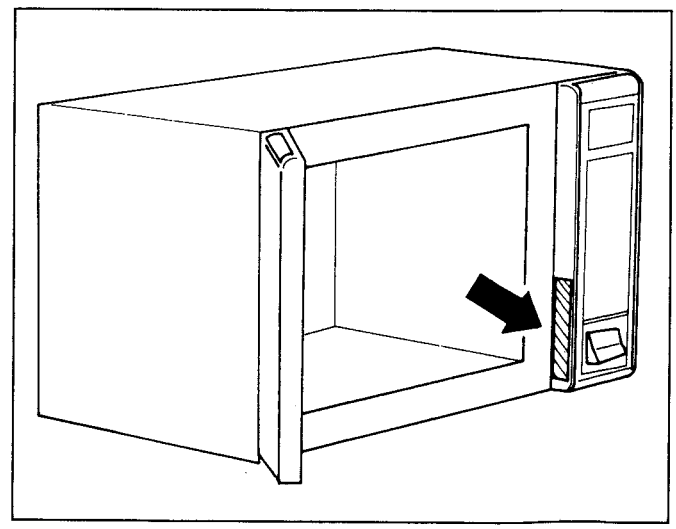
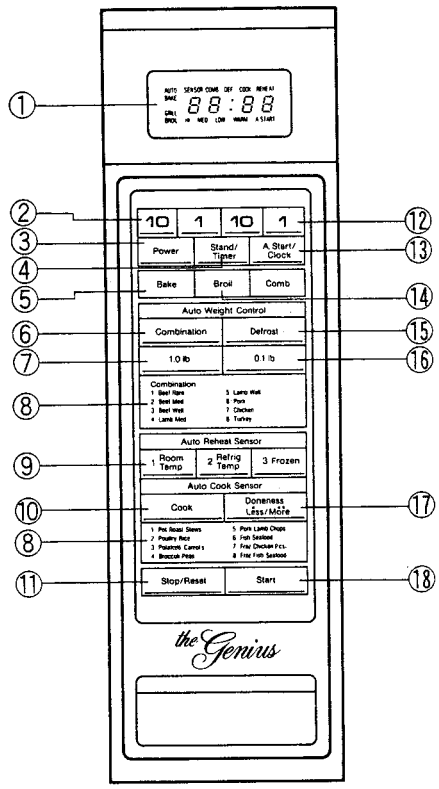


Fig. A

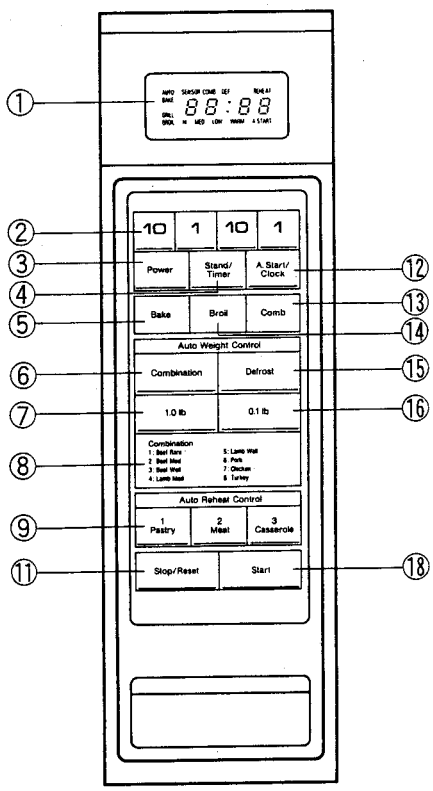
The nameplate is located on frame of the escutcheon base as illustrated in Fig. A.
The model and serial numbers will be found on this nameplate.

CONTROL PANEL

NN-8808/8858/8808P



NN-8508/8558



①Display Window

②Time Pads

③Power Pad

④Stand/Timer Pad

⑤Bake Cooking Pad

⑥A.W. Combination Pad

⑦1.0 lb Pad

⑧Cooking Guide

⑨Auto Reheat Pads

⑩Auto Sensor Cook Pad

⑪Stop/Reset Pad

⑫A.Start/Clock Pad

⑬Combination Cooking Pad

⑭Broiling Pad

⑮A.W. Defrost Pad

⑯0.1 lb Pad

⑰Doneness Pad

⑱Start Pad

OPERATION PROCEDURE

	STEP 1	STEP 2	STEP 3	STEP 4	STEP 5
CLOCK SET	CLOCK	10 1 10 1	CLOCK		
CYCLIC DEFROST	Tap 2 times POWER	10 1 10 1	START		
TIME COOKING (TWO STAGE)	POWER	10 1 10 1	POWER	10 1 10 1	START
AUTO WEIGHT DEFROST	AUTO WEIGHT DEFROST	1.0LB 0.1LB	START		
AUTO REHEAT	1 2 3	START			
AUTO SENSOR REHEAT	1 2 3	START			
AUTO SENSOR COOK	A.S. COOK	If desired DONENESS MORE/LESS	START		
AUTO WEIGHT COMBINATION COOKING	AUTO WEIGHT COMB	1.0LB 0.1LB	START		
COMBINATION-TIME COOKING	COMB	10 1 10 1	START		
BAKING-AUTO PREHEATING	BAKE	START			
BAKING-TIME COOKING	AFTER AUTO PREHEATING 10 1 10 1	START			
BROILING-AUTO PREHEATING	BROIL	START			
BROILING-TIME COOKING	AFTER AUTO PREHEATING 10 1 10 1	START			

For more detailed operating sequence, see pages 31 through 33.

NOTES WHEN PROGRAMMING:

1. CLOCK SET:
(1) To reset time of day, repeat step 1 through step 3.
(2) The clock will keep the time of day as long as oven is plugged in and electricity is supplied.
(3) To delete "88:88" indication, touch Stop/Reset pad.

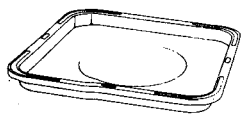
2. AUTO SENSOR REHEAT:
(1) Reheat covered with lid or plastic wrap.
(2) Stand time or a power level can be programmed after Auto Sensor Reheat.

For best results follow these recommendations:
(1) Select correct category of food being reheated. All foods must be previously cooked.
(2) Make sure glass tray in the oven is dry to assure best cooking results.
(3) Foods should always be covered loosely with plastic wrapper lid.
(4) Foods weighing less than 4 ounces and more than 32 ounces should be reheated by power and time only.
(5) All foods should have a covered stand time of 3 to 5 minutes.
(6) The surrounding room temperature should not be above 95°F. Inaccurate cooking may result.

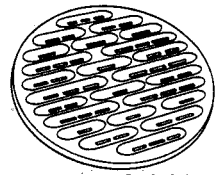
DO NOT
(1) Open oven door during reheat time. Opening door may cause inaccurate cooking results. The oven door may be opened once the timed countdown appears in display window.
(2) Reheat bread and pastry products. Use manual power and time.
(3) Cook or reheat raw or uncooked food.
(4) Use reheat if oven cavity is warm.
(5) Use reheat for beveragas.

ACCESSORIES & COOKING UTENSILS

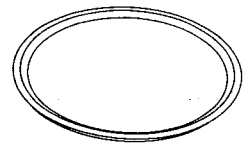
Accessories and Use



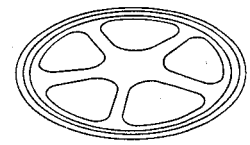
Oven Pan
Oven Pan is used for BAKE and BROIL. Do not use the Oven Pan for Microwave or Combination.



Spatter Shield
The Spatter Shield is used for COMBINATION and BROIL to help prevent spattering.

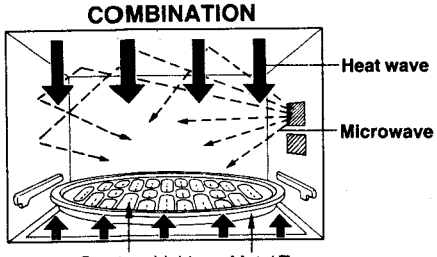


Metal Tray
Metal Tray is used for COMBINATION and MICROWAVE. Remove Metal Tray when using BROIL or BAKE.

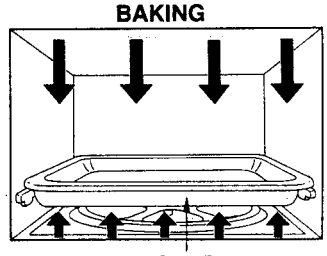


Metal Turntable
The metal turntable should always remain in the oven. It should never be removed when oven is in operation.

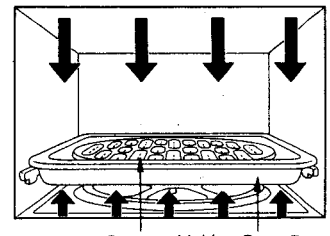
COMBINATION



BAKING

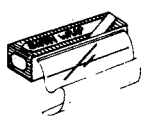


BROILING



Cooking Utensils

Following is a summary chart which describes the correct use of cooking utensils in your microwave/flat heater oven.

Cookware		Microwave	Bake	Combination	Broiling
	Heat-Resistant Glass, Glass-Ceramic (Pyrex®, Fire King®, Corning Ware®, etc.)	YES (Do not use utensils with metal trim)	YES	YES	YES, if heat-safe to 450°F
	Ceramic	YES (Do not use utensils with metal trim)	YES	YES (Do not use utensils with metal trim)	NO
	Metal	NO	YES	YES (Use metal oven accessories included with this oven only)	YES
	Non Heat-Resistant Glass	NO	NO	NO	NO
	Microwave-Safe Plastics	YES* (Start cooking time only)	NO	NO	NO
	Plastic Films & Wraps	YES*	NO	NO	NO
	Paper Products	YES*	NO	NO	NO
	Straw, Wicker & Wood	YES*	NO	NO	NO
	Browning Dishes	YES	NO	NO	NO

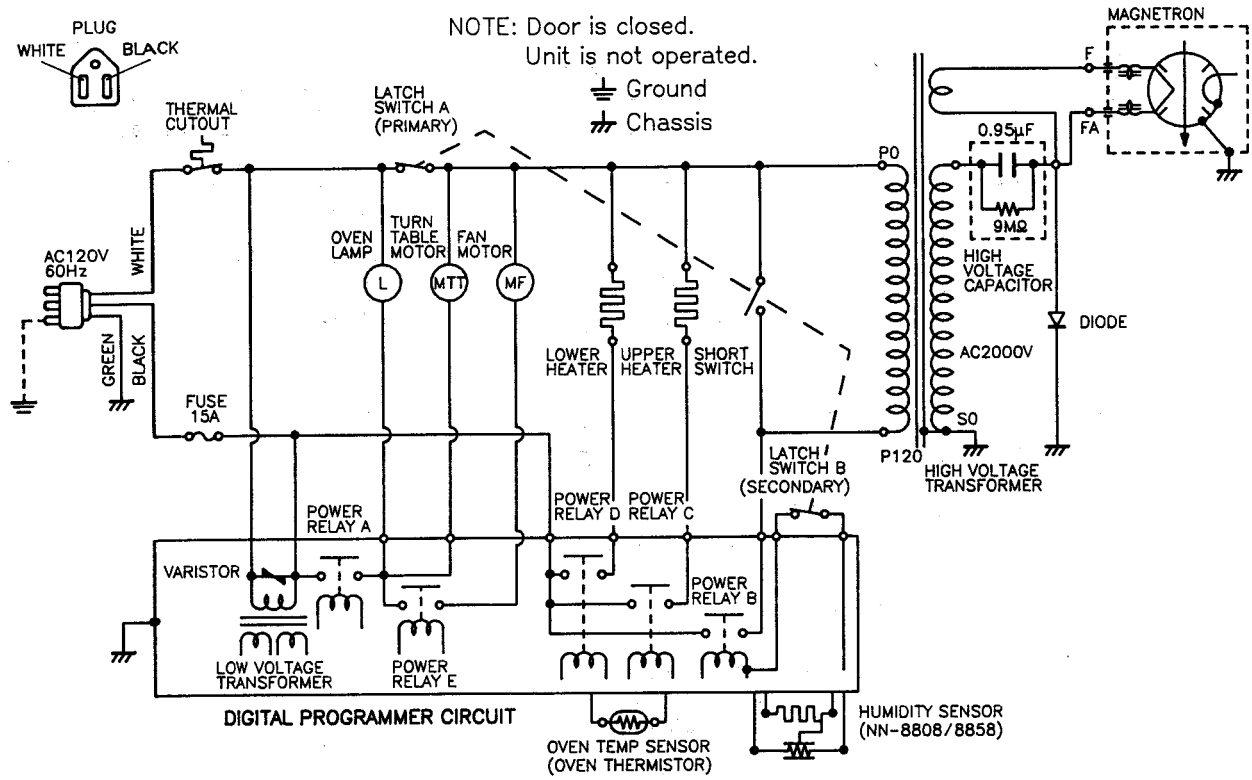
*If Bake or Combination was used prior to Microwave, allow metal tray to cool 15–20 min. before using these dishes.

NOTE: FOR MORE INSTRUCTIONS ON THE CORRECT USE OF UTENSILS IN YOUR OVEN, PLEASE READ THE INTRODUCTION SECTION IN THE PANASONIC COOKBOOK.

Fig. 1

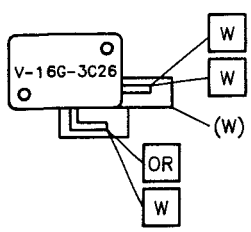
SCHEMATIC DIAGRAM (FOR U.S.A. MODELS)

NN-8508/NN-8808/NN-8858 APH

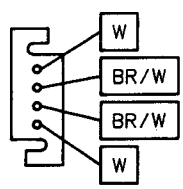


WIRING DIAGRAM

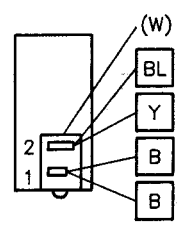
NOTE: *When replacing, check the lead wire color as shown.
*Colors shown by ( ) indicate colors of lead wire connector housing.



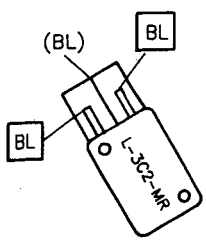
LATCH SWITCH A
TOP



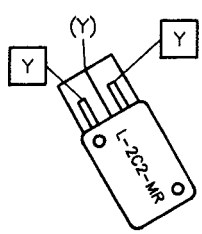
HUMIDITY SENSOR



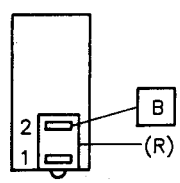
POWER RELAY B
(RY2)



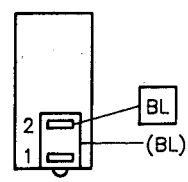
LATCH SWITCH B
BOTTOM (OUTSIDE)



SHORT SWITCH
BOTTOM (INSIDE)



POWER RELAY C
(RY3)



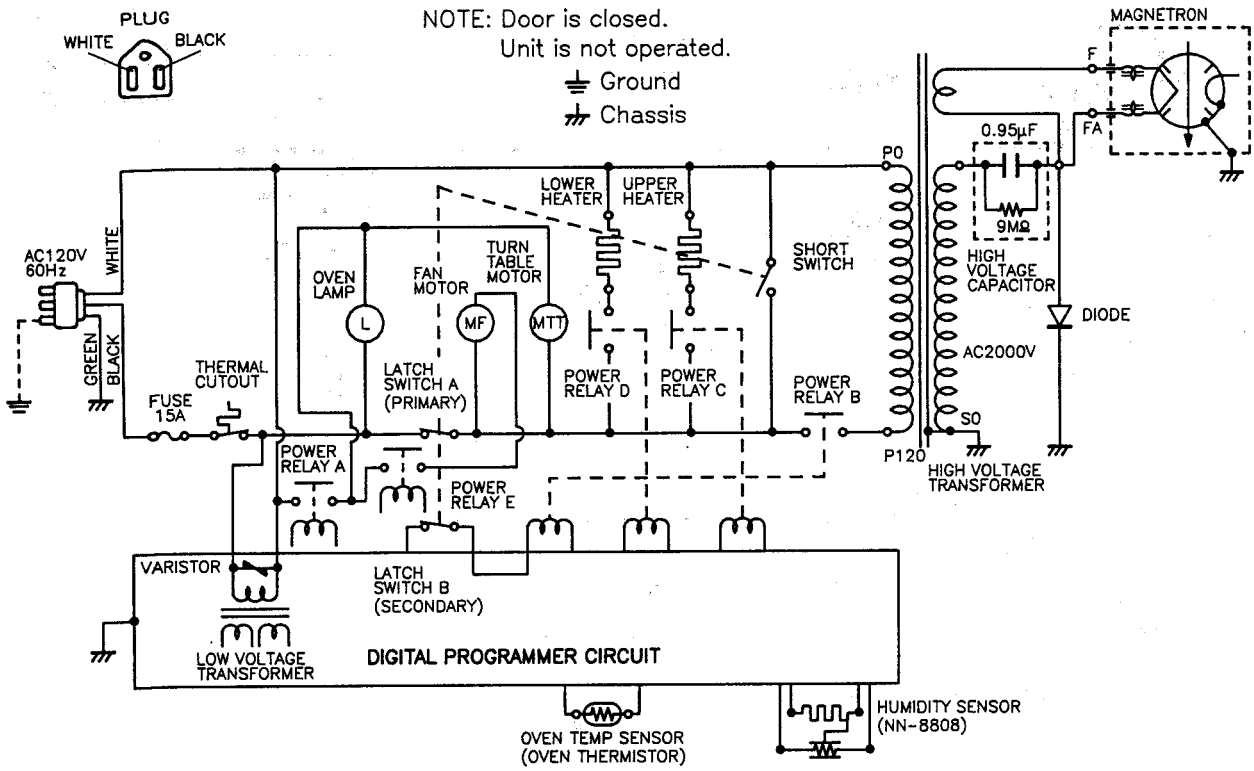
POWER RELAY D
(RY4)

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
B/W	BLACK /WHITE
BR/W	BROWN /WHITE

Fig. 1

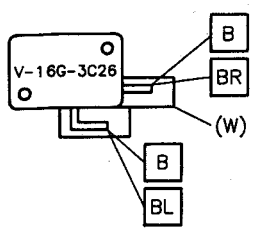
SCHEMATIC DIAGRAM (FOR CANADIAN MODELS)

NN-8558/NN-8808 CPH

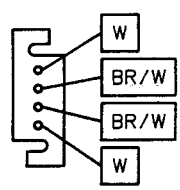


WIRING DIAGRAM

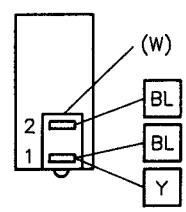
NOTE: *When replacing, check the lead wire color as shown.
*Colors shown by ( ) indicate colors of lead wire connector housing.



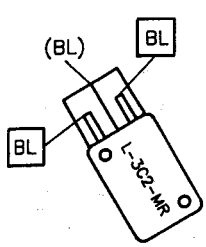
LATCH SWITCH A
TOP



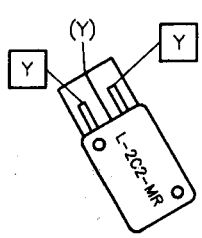
HUMIDITY SENSOR



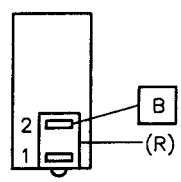
POWER RELAY B



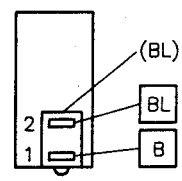
LATCH SWITCH B
BOTTOM (OUTSIDE)



SHORT SWITCH
BOTTOM (INSIDE)



POWER RELAY C

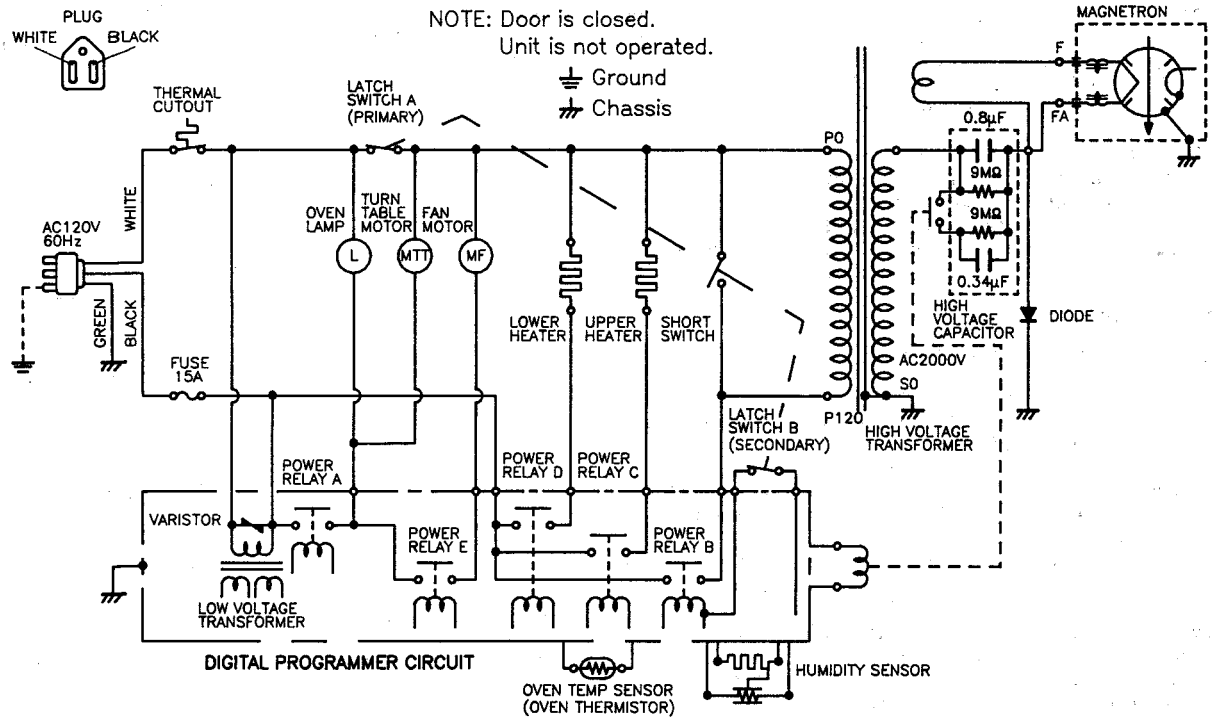


POWER RELAY D

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
B/W	BLACK /WHITE
BR/W	BROWN /WHITE

Fig. 2

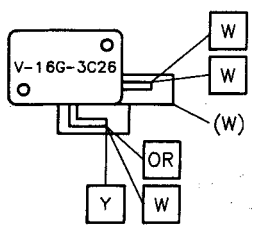
SCHEMATIC DIAGRAM (NN-8808P)



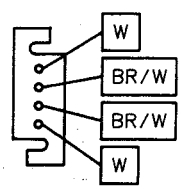
This oven is equipped with automatic conversion system for both 50Hz and 60Hz power supply frequencies with a standard 115–120 volt supply.
No specific adjustment is necessary for conversion of the power supply frequency.

WIRING DIAGRAM

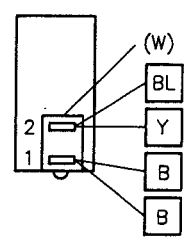
NOTE: *When replacing, check the lead wire color as shown.
*Colors shown by ( ) indicate colors of lead wire connector housing.



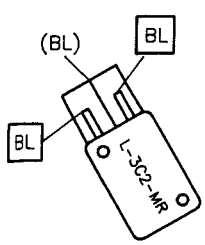
LATCH SWITCH A
TOP



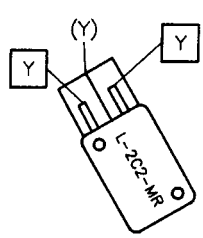
HUMIDITY SENSOR



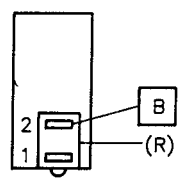
POWER RELAY B



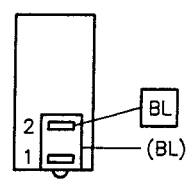
LATCH SWITCH B
BOTTOM (OUTSIDE)



SHORT SWITCH
BOTTOM (INSIDE)



POWER RELAY C



POWER RELAY D

SYMBOL	COLOR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK
B/W	BLACK /WHITE
BR/W	BROWN /WHITE

Fig. 3

DESCRIPTION OF OPERATING SEQUENCE

1. Variable power cooking control

The coil of power relay B (RY B) is energized intermittently by the digital programmer circuit, when the oven is set at any power selection except for High power position. The digital programmer circuit controls the ON-OFF time of power relay B contacts in order to vary the output power of the microwave oven from "Warm" to "High" power.

One complete ON and OFF cycle of power relay B is 22 seconds.

The relation between indications on the control panel and the output of the microwave oven is as shown in **Fig. 4.**

NOTE: **The ON/OFF time ratio does not correspond with the percentage of microwave power since approximately 1.5 seconds are required for heating of magnetron filament.**

INDICATION	OUTPUT POWER AGAINST HIGH POWER	ON, OFF TIME ON POWER RELAY B	
		ON (SEC)	OFF (SEC)
High	700W	22	0
Med	490W	17	5
M. Low	360W	13	9
Low	200W	8	14
Warm	80W	4	18
Defrost	Approx 120W	Please refer to description of cyclic defrost.	

Fig. 4

2. Cyclic defrost

When Defrost power and defrosting time is selected and Start pad is tapped:

(A) The digital programmer circuit (DPC) divides the total defrosting time into 8 cycles of alternating ON-OFF intervals of defrosting power and standing periods. (See **Fig. 5**)

(B) During each defrosting period, power relay B is energized for 9 seconds and de-energized for 13 seconds by DPC. (See **Fig. 6**)

(C) During standing periods, power relay B is always open resulting in no microwave power.

NOTE: **Defrost time selected is converted into seconds by the DPC but display will show selected time in minutes and seconds as programmed. The total number of seconds is divided into 8 time periods. The remainder (seconds not equally divisible by 8) are added to the last standing time period.**

Example : If defrosting time is selected for 5 minutes, each operating period will be as follows : (See **Fig. 7**)
5 minutes = 300 seconds
300/8 = 37 and remainder is 4 seconds.
The 4 seconds is added to the last time period.

NOTE: **When defrosting time is selected for not more than 7 seconds, the power relay B will not be energized at all.**

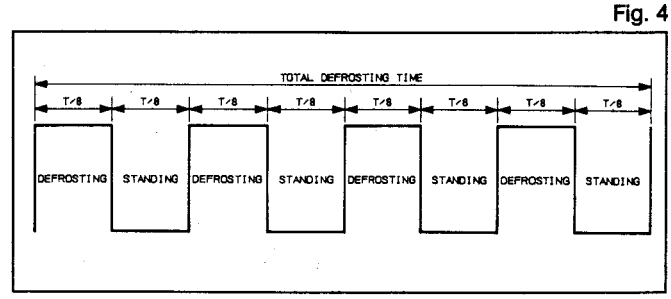


Fig. 5

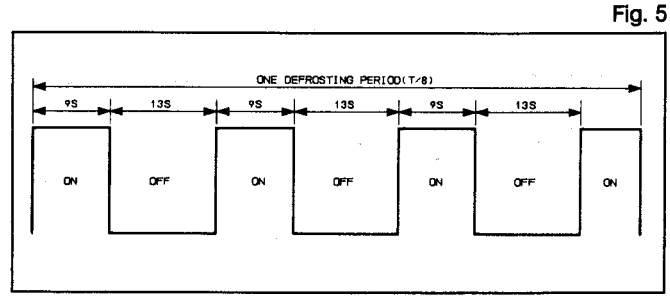


Fig. 6

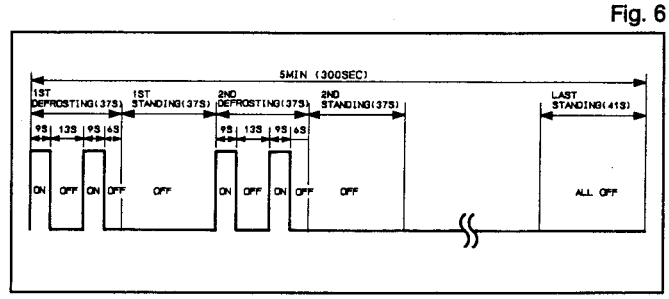


Fig. 7

3. Auto weight defrost control

When the Auto Weight Control, Defrost feature is selected and the Start Pad is tapped:

(A) The digital programmer circuit determines the power levels and defrosting time to complete defrosting and indicates the operating state in the display window.
Fig. 8 shows the defrosting times for respective weights by categories.

(B) When defrosting time in the display window has elapsed, the oven turns off automatically by the controlled signal from the digital programmer circuit.

4. Auto reheat (NN-8508/8558)

When the Auto Reheat Control feature is selected by tapping the appropriate key pads and the start pad is tapped.

(A) The digital programmer circuit determines the power level and cooking time to complete cooking and indicates the operating state in the display window.
Fig. 9 shows the corresponding cooking times with respective serving by categories.

(B) When cooking time in the display window has elapsed, the oven turns off automatically by a controll signal from the digital programmer circuit.

Auto Weight Defrost

WEIGHT SELECTED	TOTAL DEFROSTING TIME
1 LB	12 min. 00 sec.
6 LB	1 hour 20 min.
12 LB	2 hours 56 min.

Fig. 8

Auto Reheat (NN-8508/8558)

CATEGORY / SERVING	1 PASTRY	2 MEAT	3 CASSEROLE
1	10 sec.	1 min. 30 sec.	2 min. 30 sec.
4	40 sec.	4 min. 30 sec.	9 min. 00 sec.

Fig. 9

5. Baking and Broiling Control

FLAT HEATER

In this concept two (2) flat heaters are used. Located one on top and one on bottom of oven cavity, they operate alternately to provide the necessary heat. The heater consists of flat heater wire insulated between two mica plates similar to that of a toaster.

The digital programmer circuit controls the alternating ON-OFF time of upper and lower heater in order to control the oven cavity temperature, see **fig. 10A and 11**.

(A) After the start pad is tapped with the desired bake or broil programme selected, an 18V DC signal comes out of the digital programmer circuit and is applied to the coil of power relay C and D alternately.

(B) When power relay C energizes, power source voltage (120V AC) is applied to the upper heater and oven temperature starts increasing.

(C) When the power relay C is deenergized, upper heater turns off and when power relay D is energized, the lower heater turns on.
In this way, the upper and lower heater turn on alternately until the selected oven temperature is obtained.

(D) When the oven reaches the selected temperature, the digital programmer circuit senses the temperature through oven temp sensor and stops supplying 18V DC signal to the power relays C and D resulting in turn off of upper and lower heaters. After the heaters have been turned off, the oven temperature will continue to increase a while then decrease as shown in **Fig. 11**.

(E) When the oven temperature drops below selected temperature, the digital programmer circuit senses the oven temperature and starts supplying 18V DC to the coils of power relays C and D alternately again.

NOTE 1: ON-OFF time of upper heater and lower heater vary depending on the selected oven temperature as shown in **Fig. 10A**. When baking is selected with temperature setting of 200-450°F, off period of both heaters is also programmed while oven temperature is lower than selected temperature, as shown in **Fig. 10A and 11**.

NOTE 2: When Broil cooking feature is selected, oven temperature is determined automatically as shown in **Fig. 10B**.

Heater ON-OFF Time for Preheat, Baking, Broiling

		ON TIME OF UPPER HEATER (TU)	ON TIME OF LOWER HEATER (TL)	OFF TIME OF BOTH HEATERS (TF)
Preheat		26 sec	21 sec	0
Baking	200°F~350°F	12 sec	12 sec	23 sec
	375°F~450°F	16 sec	21 sec	10 sec
Broiling		26 sec	21 sec	0

Fig. 10A

Broiling Temperature

CATEGORY	OVEN TEMP
1	450°F

Fig. 10B

Baking and Broiling

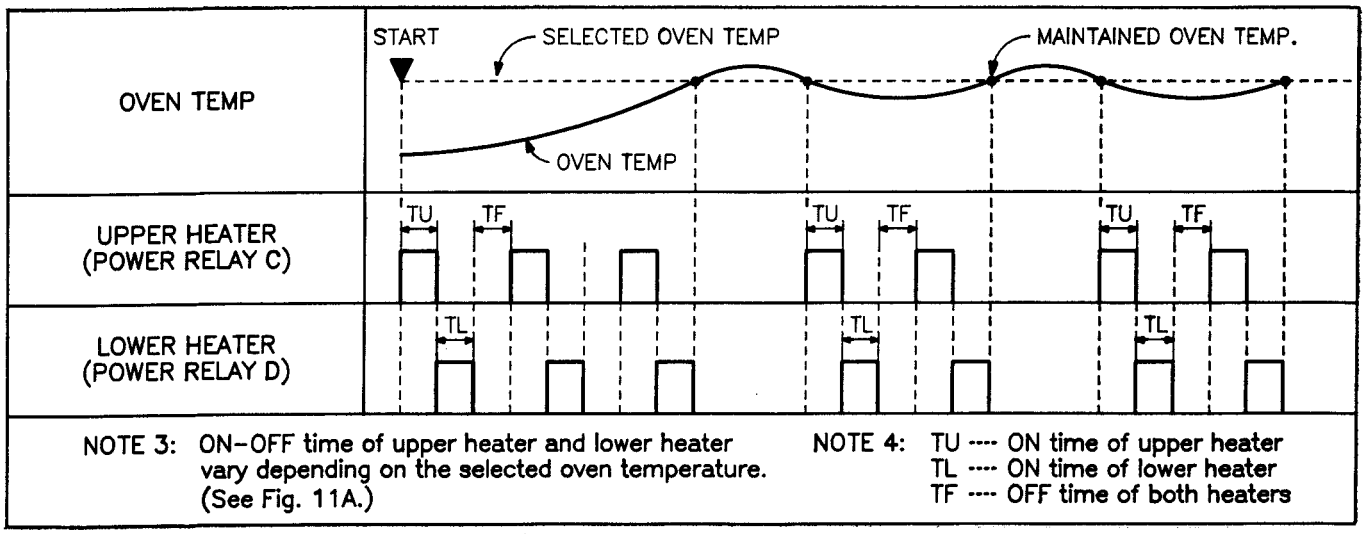

OVEN TEMP
START
SELECTED OVEN TEMP
MAINTAINED OVEN TEMP.
OVEN TEMP
UPPER HEATER (POWER RELAY C)
LOWER HEATER (POWER RELAY D)
TU
TF
TL
NOTE 3: ON-OFF time of upper heater and lower heater vary depending on the selected oven temperature. (See Fig. 11A.)
NOTE 4: TU ---- ON time of upper heater
TL ---- ON time of lower heater
TF ---- OFF time of both heaters

Fig. 11

6. Combination cooking control

Combination cooking is accomplished by operating the microwave and heater mode alternately during one combination cooking cycle. One combination cooking cycle is 47 seconds.

(A) The digital programmer circuit generates the power relay B, C, D and E control signals at a specific timing as shown in **Fig. 12**.

(B) When the oven temperature reaches the predetermined temperature, the digital programmer circuit stops supplying power relay C and D control signals resulting in both upper and lower heaters to turn off. During this, digital programmer circuit continues supplying power relay B and power relay E control signals so that microwave and fan motor activity continues at predetermined duty ratio as shown in **Fig. 12**. The microwave and fan motor activity continues to cycle until entire cooking programme is completed.

(C) When the oven temperature drops below the predetermined temperature, the digital programmer circuit generates power relay C and D control signals again at the timing predetermined.

NOTE: The power relays B, C and D do not turn on at the same time. Any of two power relays of them should be always off so that input current always remains within allowable main current (15A).

Combination Cooking (When combination category 1 is selected.)

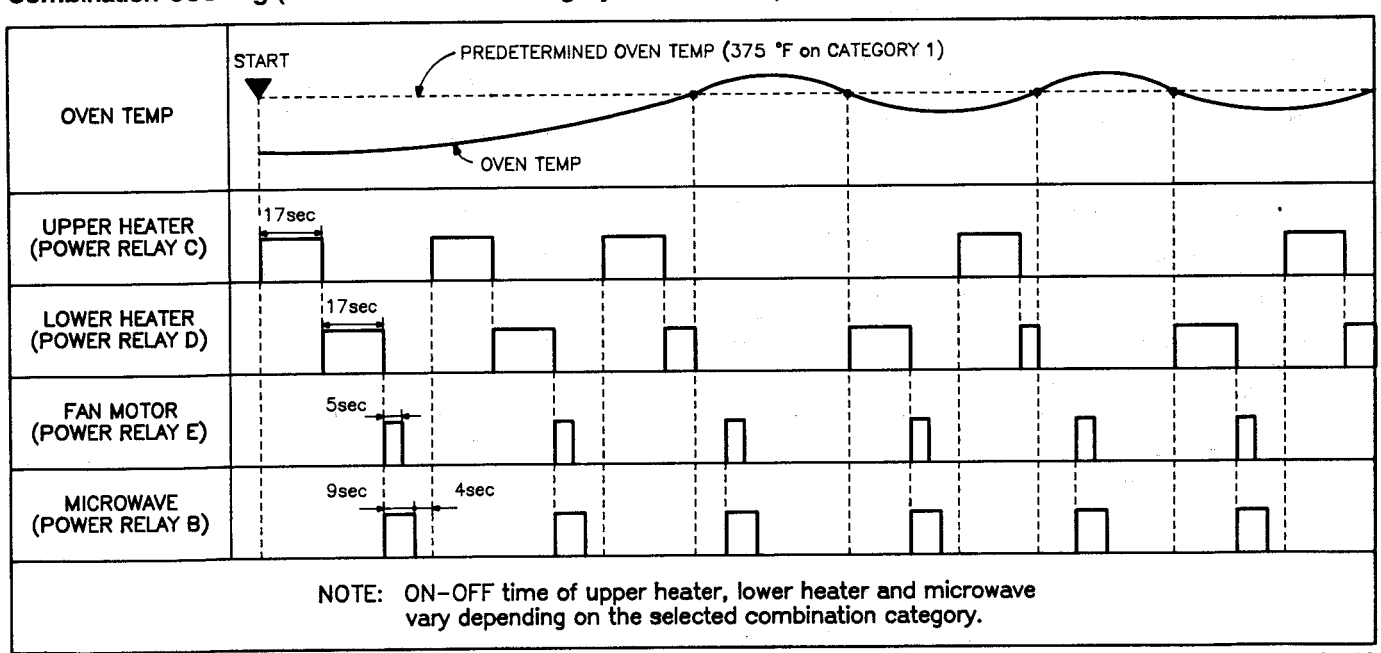


Fig. 12

7. Auto weight combination cooking control

When the Auto Weight Control, Combination Cooking feature is selected by tapping the appropriate key pads and Start pad is tapped.

(A) The digital programmer circuit determines the power level, oven temperature and combination cooking time to complete combination cooking and indicates the operating state in the display window. **Fig. 13** shows the combination cooking times for respective weights by categories.

(B) When the combination cooking time in the display window has elapsed, the oven turns off automatically by the controlled signal from the digital programmer circuit.

Auto Weight Combination

WEIGHT SELECTED	TOTAL COMBINATION COOKING TIME		
	CATEGORY 1	CATEGORY 2	CATEGORY 3
1 LB	16 min. 00 sec.	18 min. 00 sec.	27 min. 00 sec.
5 LB	1 hour 20 min.	1 hour 30 min.	2 hour 15 min.
	CATEGORY 4	CATEGORY 5	CATEGORY 6
1 LB	17 min. 00 sec.	22 min. 00 sec.	20 min. 00 sec.
4 LB	1 hour 08 min.	1 hour 28 min.	1 hour 20 min.
	CATEGORY 7	CATEGORY 8	
1 LB	14 min. 00 sec.	13 min. 00 sec.	
6 LB	1 hour 36 min.	1 hour 18 min.	

Fig. 13

AUTO SENSOR EXPLANATION, K FACTORS AND POWER LEVELS (For NN-8808, NN-8858, NN-8808P)

1. Auto sensor cooking

Auto sensor cooking is a revolutionary way to cook by microwave without setting a power level or selecting a time.
All that is necessary is to select an Auto Sensor Program before starting to cook.

Understanding Auto Sensor Cooking

As a food cooks, a certain amount of steam is produced. If the food is covered, this steam builds up and eventually escapes from the container. In Auto Sensor Cooking, a carefully designed instrument, called the humidity sensor element, senses this escape of steam. Then, based upon the Auto Sensor Program selected, the unit will automatically determine the correct power level and the proper length of time it will take to cook the food.

NOTE: Auto Sensor Cooking is successful with the foods and recipes found in the Auto Sensor Cooking Guide. Because of the vast differences in food composition, items not mentioned in the Cooking Guide should be prepared in the microwave oven using power select and time features. Please consult Variable Power Microwave Cookbook for procedures.

Explanation of the Auto Sensor Cooking process (See Fig. 14A)

1) The shaded columns in **Fig. 14A** indicate when the humidity sensor heater is on.
2) During the first 30 period there is microwave activity at P1 power. This period is included to T1 time. During the next 30 second period is no microwave activity. When calculating the T2 time, by using the formula below, make sure this 30 seconds is subtracted from T0 time.
3) **T1 time**·····The total amount of time it takes the microwave oven to switch to T2 time. During this time one of the Auto Senser programs will be shown in display.
4) **T2 time**·····When the steam escapes from the cooking container placed in the oven, the humidity sensor detects it and the microprocessor calculates the balance of cooking time. This T2 time is then shown in the display and begins counting down.

Balance of cooking time (T2 time)

The balance of cooking time which is called T2 time, can be calculated by the following formula.

T2 time (in sec.) =T1 time × K factor

NOTE: Remember, the T1 time starts after the 50 second period. The coefficient K is programmed into the microprocessor memory and they are listed in the following tables along with the P1 and P2 powers. (See Fig. 14B)

Some examples of calculating the T2 time

Example 1: If the T1 time is measured to be 2 minutes and 40 seconds and the Auto program selected is COOK 6:

T2 = T1 × K
= 2 min. and 40 sec. × 0.1
= 160 sec. × 0.1
= 16 sec.

2. Auto Sensor Reheat

With Auto Sensor Reheat, you can accurately reheat foods in accordance with their current state of preparation. This allows you to set the oven to reheat either: 1) Room temperature foods, 2) Refrigerated foods and 3) Frozen foods at their appropriate power levels and times. Best of all, Auto Sensor automatically does it all at the touch of a button!

NOTE: The Auto Sensor Reheat process is same as Auto Sensor Cooking process. (See Fig. 14A)

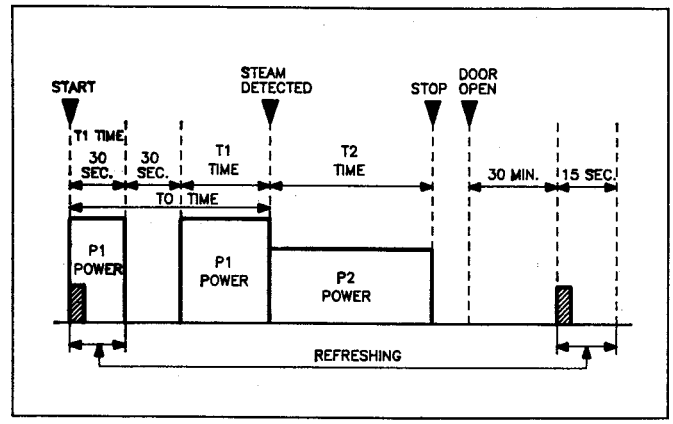


Fig. 14A

AUTO SENSOR COOK			
CATEGORY	P1 Power	P2 Power	K factor Standard
1	MED	M. LOW	2.5
6	HIGH	WARM	0.1
8	MED	LOW	0.3

Fig. 14B

AUTO SENSOR REHEAT			
CATEGORY	P1 Power	P2 Power	K factor Standard
1	HIGH	MED	0.1

Fig.14C

CAUTIONS TO BE OBSERVED WHEN TROUBLESHOOTING

Unlike many other appliances, the microwave oven is high-voltage, high-current equipment. Though it is free from danger in ordinary use, extreme care should be taken during repair.

CAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

1. Check the grounding

Do not operate on a 2-wire extension cord. The microwave oven is designed to be used when grounded. It is imperative, therefore, to make sure it is grounded properly before beginning repair work.

2. Warning about the electric charge in the high voltage capacitor (Fig. 15)

For about 30 seconds after the oven is turned off, an electric charge remains in the high voltage capacitor.
When replacing or checking parts, remove the power plug from the outlet and short the terminal of the high voltage capacitor (terminal of lead wire from diode) to chassis ground with an insulated handle screwdriver to discharge.

WARNING

There is high-voltage present, with high-current capabilities in the circuits of the high voltage winding and filament winding of the high voltage transformer. It is extremely dangerous to work on or near these circuits with oven energized.
DO NOT measure the voltage in the high voltage circuit including filament voltage of magnetron.

WARNING

Never touch any circuit wiring with your hand nor with an insulated tool during operation.

3. When parts must be replaced, remove the power plug from the outlet.

4. When the 15 Amp fuse is blown due to the operation of short switch:

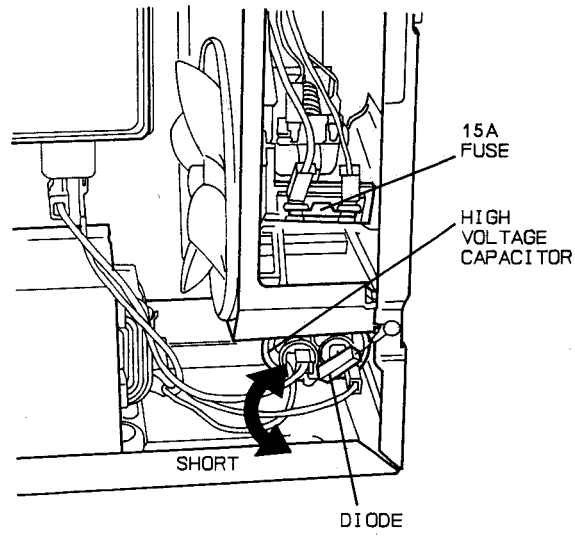
WARNING

When the 15 Amp. fuse is blown due to the operation of short switch, you must replace latch switch A and short switch. For U.S.A. models, also replace power relay B when the continuity check reads shorted contacts (1-2).

(A) This is mandatory. Refer to page 23 for the necessary adjustments for these switches.
(B) When replacing the fuse, confirm that it has the appropriate rating for these models.
(C) When replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

5. Avoid inserting nails, wire, etc. through any holes in the unit during operation.

Never insert a wire, nail or any other metal object through the lamp holes on the cavity or any other holes or gaps, because such objects may work as an antenna and cause microwave leakage.



Touch chassis side first then short to the high voltage capacitor terminal.

Fig. 15

6. Confirm after repair

(A) After repair or replacement of parts, make sure that the screws of the oven, etc. are neither loose nor missing.
Microwaves might leak if screws are not properly tightened.
(B) Make sure that all electrical connections are tight before inserting the plug into the wall outlet.
(C) Check for microwave energy leakage. (Refer to procedure for measuring microwave energy leakage on page 24.)

DISASSEMBLY AND PARTS REPLACEMENT PROCEDURE

1. Replacement of the magnetron

CAUTION

Servicemen should remove their watches whenever working close to or replacing the magnetron.

(A) Discharge the high voltage capacitor. (See page 15)
(B) Remove 2 screws holding air guide A. **(Fig. 16)**
(C) Remove 2 high voltage leads from filament terminals. (F, FA)
(D) Remove 4 screws holding the magnetron. **(Fig. 16)**
NOTE: To prevent microwave leakage, tighten mounting screws properly making sure there is no gap between the waveguide and the magnetron.

CAUTION

When connecting 2 filament lead wires to the magnetron terminals, be sure to connect the lead wires in the correct position. The lead wire of high voltage transformer should be connected to "F terminal" and the lead wire from high voltage capacitor should be connected to "FA terminal". (See **Fig. 16)**

2. Replacement of the fan motor and high voltage capacitor.

(A) Disconnect 2 lead wires from fan motor terminals. **(Fig. 17)**
(B) Disconnect 2 lead wires from fuse holder terminals. **(Fig. 17)**
(C) Disconnect 4 high voltage lead wires from high voltage capacitor terminals. **(Fig. 17)**
(D) Remove 4 screws holding fan motor and orifice assy and detach the orifice assy with fan motor from oven assy. **(Fig. 18)**
(E) Remove fan blade from the fan motor shaft by pulling it straight out.
(F) Separate the fan motor from the orifice assy by freeing 2 catch hooks on the orifice assy.

To replace high voltage capacitor

(G) Remove 1 screw holding high voltage capacitor.

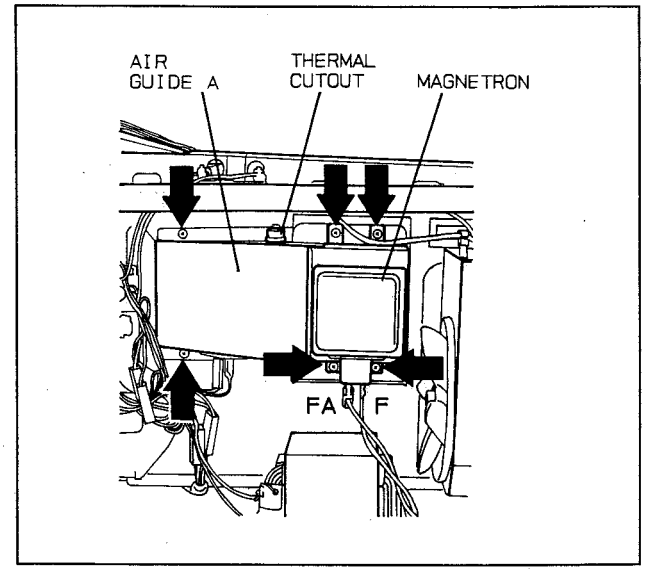


Fig. 16

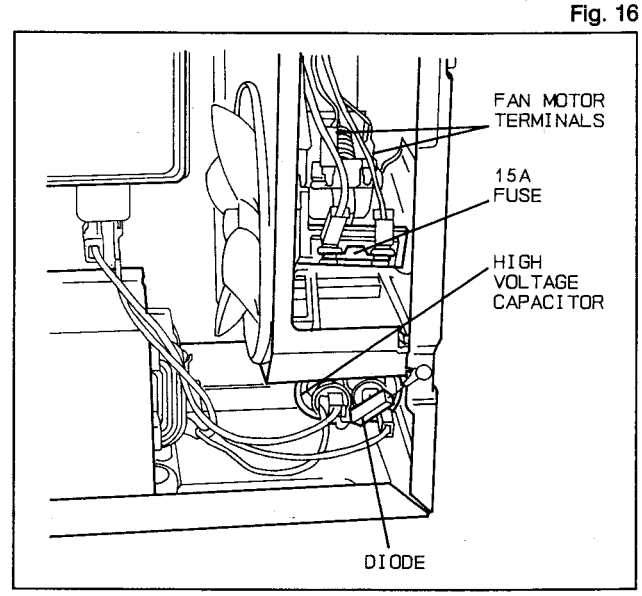


Fig. 17

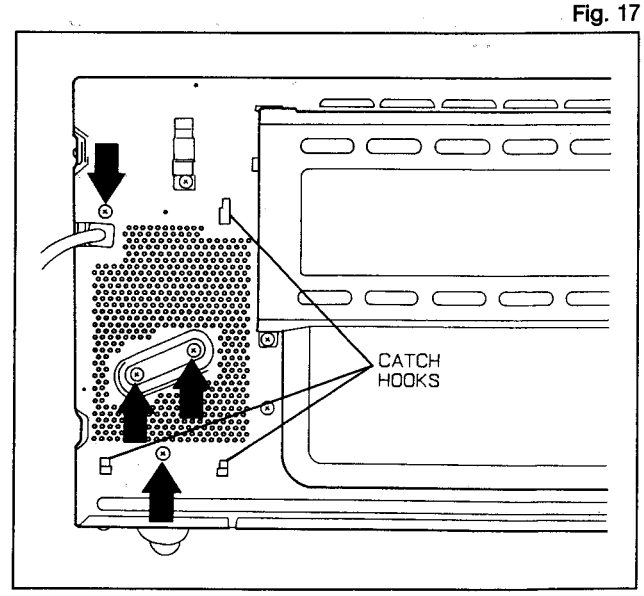


Fig. 18

3. Replacement of the digital programmer circuit (D.P.C.) and membrane key board.

NOTE: Be sure to ground any static electric charge built up on your body, before handling the D.P.C..
(A) Disconnect all connectors from D.P.C.. (**Fig. 19**)
(B) Disconnect all lead wires from the power relay B, C and D.
(C) Remove 1 screw holding the escutcheon base. (**Fig. 19**)
(D) Disconnect flat cable of membrane switch by pushing connector lever and pull it (**Fig. 20**).
(E) Remove 2 screws holding the D.P.C.. (**Fig. 20**)

To replace membrane key board

(F) Remove escutcheon bracket from escutcheon base by freeing 4 catch hooks on the escutcheon base.
(G) Peel off the membrane key board from escutcheon bracket.
NOTE 1: The membrane key board is attached to the escutcheon bracket with double faced adhesive tape.
NOTE 2: When installing new membrane key board, make sure that the surface of the escutcheon bracket is cleaned sufficiently so that any problem (shorted contacts or uneven surface) can be avoided.
NOTE 3: Make sure new membrane keyboard is aligned to the left and lower edges of the escutcheon bracket. (**Fig. 21**)

4. Replacement of the low voltage transformer and/or power relays (RY A, RY B, RY C, RY D, RY E) (Fig. 20)

NOTE: Be sure to ground any static electric charge built up on your body before handling the D.P.C.
(A) Using solder wick or a desoldering tool and 30W soldering iron, carefully remove all solder from the terminal pins of the low voltage transformer or power relays (RY A, RY B, RY C, RY D, RY E).
NOTE: Do not use a soldering iron or desoldering tool of more than 30 watts on D.P.C. board.
(B) With all the terminal pins cleaned and separated from D.P.C. contacts, remove the defective transformer/power relay and install new transformer/power relay making sure all terminal pins are inserted completely. Resolder all terminal contacts carefully.

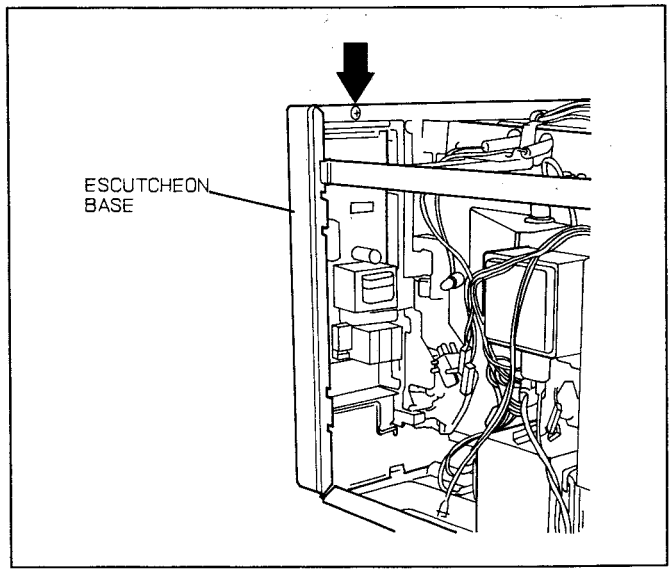


Fig. 19

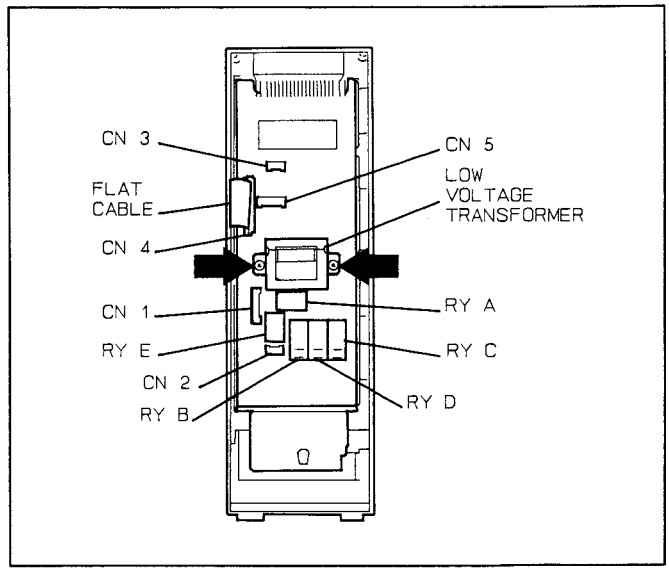


Fig. 20

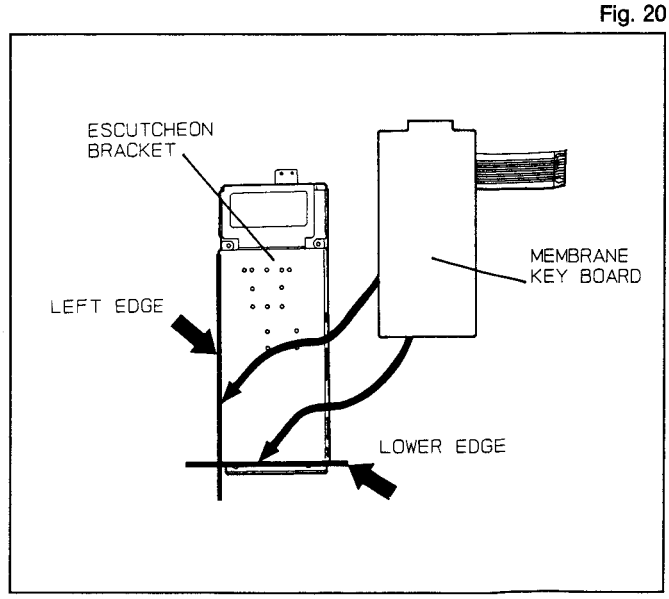


Fig. 21

5. Disassembly of the door assembly.

(A) Open the door and remove 4 screws holding door C. (**Fig. 22**)
(B) Remove the door C from door E by carefully pulling outward starting from upper right hand corner. (**Fig. 22**)
(C) Remove door key spring and remove 3 screws holding door handle. (**Fig. 23**)
(D) Separate the door A from the door E by freeing 6 catch hooks on the door A. (**Fig. 24**)
(E) Remove door keys, door key lever, door key spring and door key pins. (**Fig. 23**)

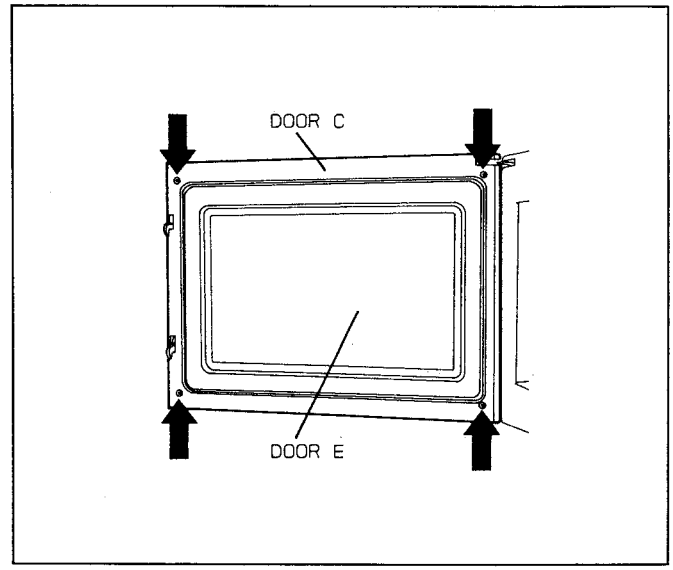


Fig. 22

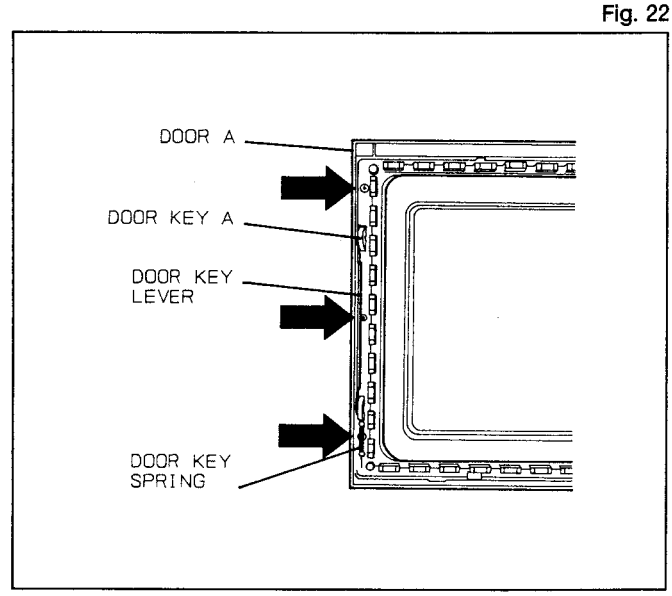


Fig. 23

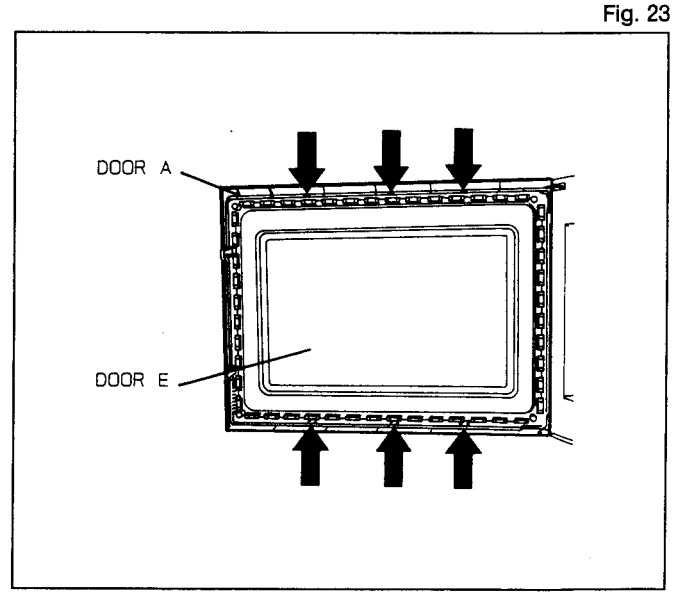


Fig. 24

6. Replacement of the upper heater (Heater B)

(A) Release humidity sensor wires from 3 lead wire holders and disconnect sensor connector from D.P.C..
(B) Remove 2 nuts holding 2 heater terminals. **(Fig. 25)**
(C) Remove a screw holding heater terminal plate bracket.
(D) Remove 2 screws holding heater panel A and lift off the panel.
(E) Remove 4 screws holding inner heater panel and lift out. **(Fig. 26)**
(F) Remove adiabatic material B.
(G) Remove the upper heater (heater B) by carefully freeing the 2 hooks holding the center portion of heater and removing 2 screws. **(Fig. 27)**

NOTE : Special screws are used to hold the inner heater panel and heater B. **(Fig. 26 & 27)**

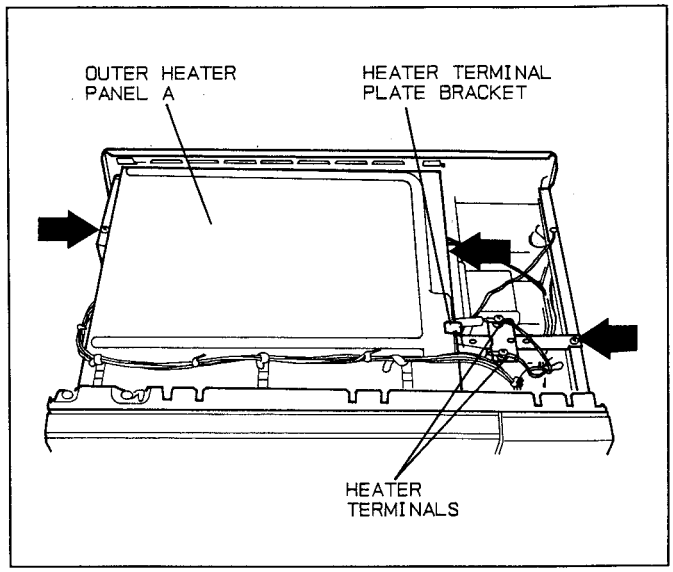


Fig. 25

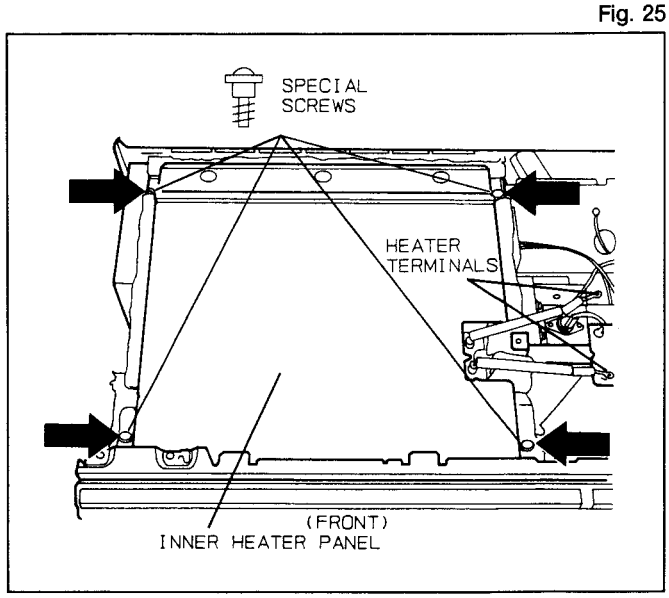


Fig. 26

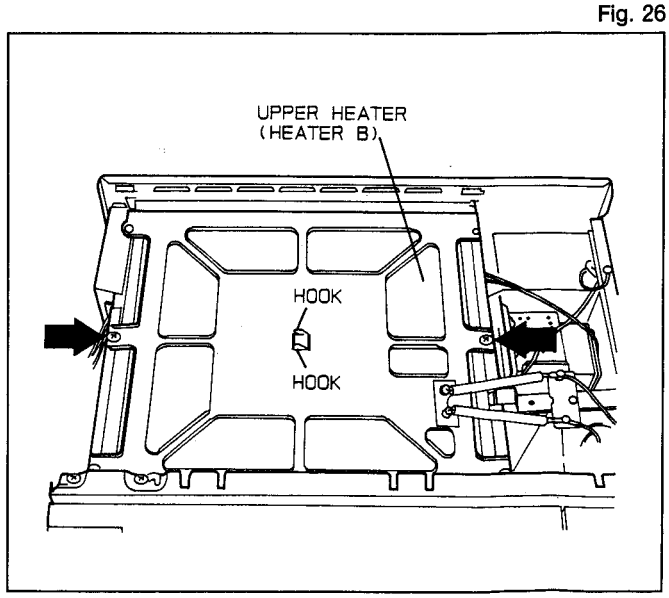


Fig. 27

7. Replacement of the lower heater (Heater A)

(A) Remove the tray and the turntable from oven cavity.
(B) Carefully turn the oven up side down.
(C) Remove the base C by removing 2 screws. (**Fig. 28**)
(D) Disconnect the turntable motor connector.
(E) Remove 2 screws holding 2 heater terminals. (**Fig. 29**)
(F) Remove the motor bracket by removing 3 screws. (**Fig. 30**)
(G) Remove the lower heater panel by removing 5 screws. (**Fig. 34**)
(H) Remove the adiabatic material A.
(I) Remove the lower heater (heater A) by freeing the 4 hooks and removing 2 screws. (**Fig. 35**)

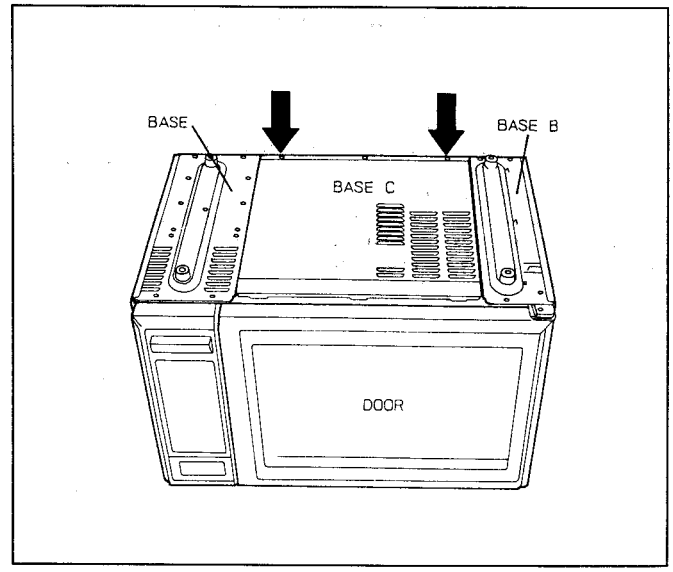


Fig. 28

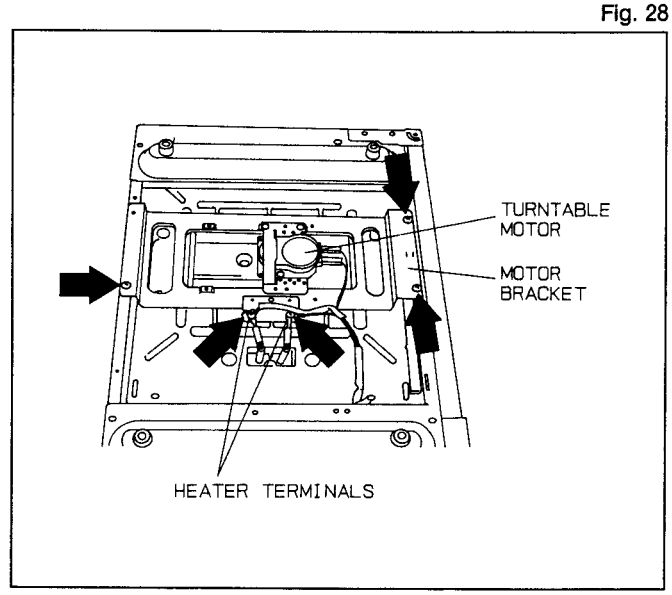


Fig. 29

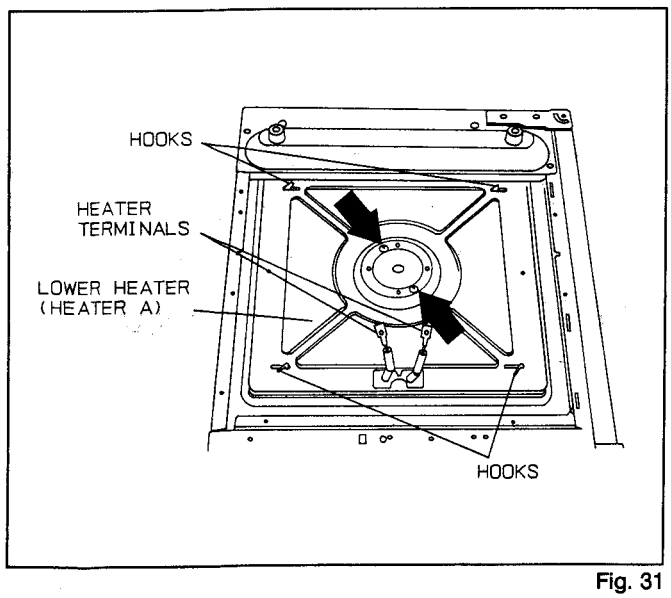


Fig. 31

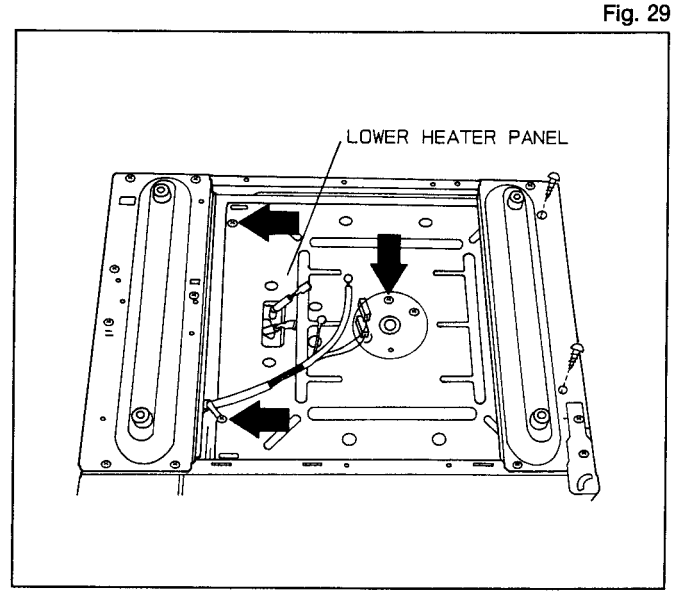


Fig. 30

COMPONENT TEST PROCEDURE

CAUTION

1. High voltage is present at the high voltage terminal of the high voltage transformer during any cook cycle.
2. It is neither necessary nor advisable to attempt measurement of the high voltage.
3. Before touching any oven components, or wiring, always unplug the oven from its power source and discharge the capacitor. (See page 15.)

1. High voltage transformer (See Fig. 34)

(A) Remove connections from the transformer terminals and check continuity.
(B) Normal (cold) resistance readings should be as follows:
Secondary winding ..... Approx. 80Ω~110Ω
Filament winding ..... Approx. 0Ω
Primary winding ..... Approx. 0Ω~ 1Ω

2. High voltage capacitor

(A) Check continuity of capacitor with meter on highest OHM scale.
(B) A normal capacitor will show continuity for a short time, and then indicate 9MΩ once the capacitor is charged.
(C) A shorted capacitor will show continuous continuity.
(D) An open capacitor will show constant 9MΩ.
(E) Resistance between each terminal and chassis should be infinite.

3. Diode

(A) Isolate the diode from the circuit by disconnecting the leads.
(B) With the ohmmeter set on the highest resistance scale, measure the resistance across the diode terminals. Reverse the meter leads and again observe the resistance reading. Meter with 6V, 9V or higher voltage batteries should be used to check the front-to-back resistance of the diode, otherwise an infinite resistance may be read in both directions.
A normal diode's resistance will be infinite in one direction and several hundred kΩ in the other direction.

4. Magnetron (See Fig. 35)

Continuity checks can only indicate an open filament or a shorted magnetron. To diagnose for an open filament or shorted magnetron,
(A) Isolate magnetron from the circuit by disconnecting the leads.
(B) A continuity check across magnetron filament terminals should indicate one ohm or less.
(C) A continuity check between each filament terminal and magnetron case should read open.

5. Membrane key board (Membrane switch assembly)

Check continuity between switch terminals, by pressing an appropriate pad on the key board.
The contacts assignment of the respective pads on the key board is as shown in **Fig. 36.**

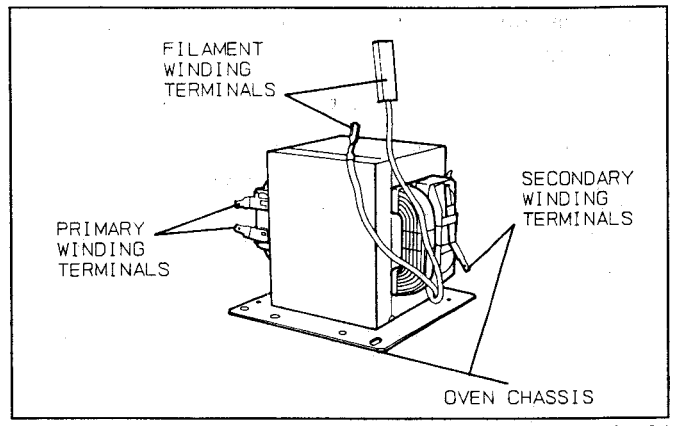


Fig. 34

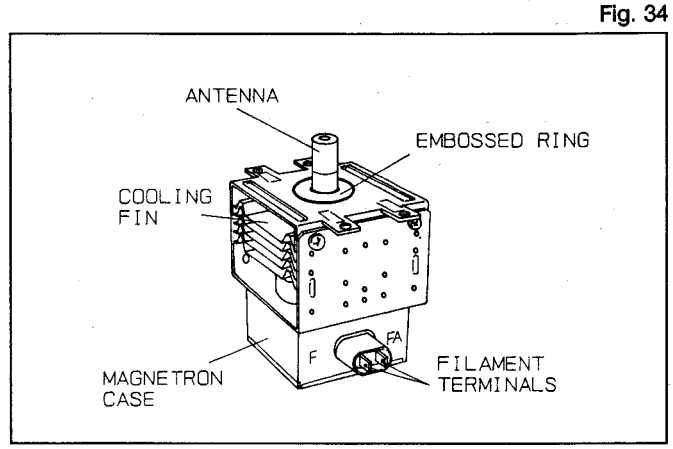


Fig. 35

KEY PAD	PIN NO.		KEY PAD	PIN NO.	
	NN-8808(P) NN-8858	NN-8508 NN-8558		NN-8808(P) NN-8858	NN-8508 NN-8558
STOP/RESET	2–6	2–6	1 SEC	2–8	2–8
START	1–6	1–6	10 SEC	3–8	3–8
POWER	5–9	5–9	1 MIN	4–8	4–8
STAND/TIMER	5–7	5–7	10 MIN	5–8	5–8
A.START/CLOCK	4–7	4–7	A.S.REHEAT ROOM TEMP	2–10	—
BAKE	3–9	3–9	A.S.REHEAT REFRING TEMP	3–10	—
BROIL	2–9	2–9	A.S.REHEAT FROZEN TEMP	4–10	—
COMB	4–9	4–9	A.S.COOK	2–11	—
A.W.COMB	2–7	2–7	DONENESS LESS/MORE	5–10	—
A.W.DEFROST	3–7	3–7	A.REHEAT 1	—	3–11
1.0 LB	3–6	3–6	A.REHEAT 2	—	4–11
0.1 LB	4–6	4–6	A.REHEAT 3	—	5–11

Fig. 36

6. Humidity sensor and digital programmer circuit (See Fig. 37)

CAUTION

Do not touch any parts of the circuitry on the digital programmer circuit since static electric discharge may damage this control panel.
Always ground yourself while working on this panel to discharge any static charge built up in your body.

(A) Check across sensor heater terminals with 7-pin connector (CN5) unplugged. Normal cold resistance should read approx. 4.5 ohm.
(B) In order to determine if the Auto Sensor Cooking function of the digital programmer circuit is in working order or not, do the following test.
1) Place a water load in the oven.
2) Unsolder Brown/White wires connected to sensor terminals.
3) Tap Auto Sensor Cook Control Pad six times to set Auto Sensor Cooking 6 and tap Start Pad
4) About 10 seconds after Start Pad is tapped, short Brown/White wires for 5 seconds and then remove them. Before shorting the Brown/White wires you can watch the sensor heater glow red.
5) Approx. 75 seconds after the Start Pad is tapped, short the Brown/White wires again.
6) 6 should disappear in display window and following digits (see chart) should appear indicating **balance of cooking time (T2 TIME).
The time should start to count down and oven should shut off when the time has elapsed.

	**T2 TIME (balance of cooking time)
70 sec.~79 sec.	4 sec.
80 sec.~89 sec.	5 sec.

The Auto Sensor Cooking function in the digital programmer circuit is in working order if above condition is obtained.

7. To test the oven temp sensor thermistor

This sensor monitors the heat produced by the heater circuit and maintains the oven temperature the user had selected. Normal room temperature, especially in a kitchen can vary anywhere from 50°F to 90°F. The reading across the oven sensor thermistor should be within 360K ohm to 800K ohm when reading in an area within the 50°F to 90°F room temperature range.
If the resistance reading is out of the range stated here, the sensor is defective and must be replaced.

NOTE 1: When measuring resistance disconnect the 4-pin connector (CN3) from the DPC otherwise a false reading may be indicated.

NOTE 2: If checking an oven sensor thermistor just after the microwave oven has been operating, the sensor of course won't be room temperature. In this case the sensor must be removed and allowed to cool down to the 50°F to 90°F range.

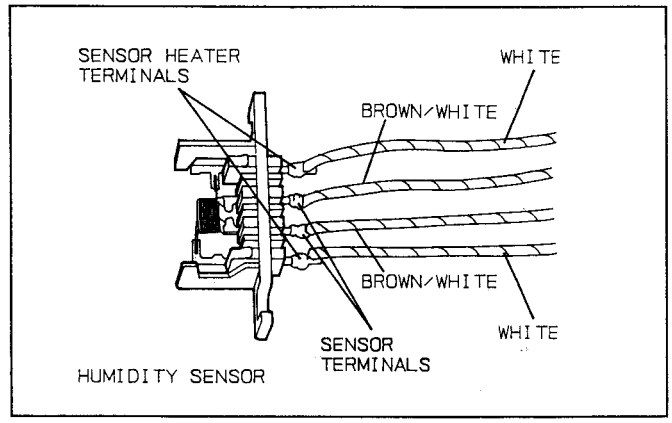


Fig. 37

MEASUREMENTS AND ADJUSTMENTS

WARNING

For continued protection against radiation hazard, replace only with identical replacement parts (Part No. ANE61424L0AG, Type No. V-16G-3C26 for latch switch A, Part No. A61424650AP, Type No. L-3C2-MR for latch switch B and Part No. ANE6178-5R0, Type No. L-2C2-MR for short switch.
When the 15 Amp. fuse is blown due to the operation of short switch, you must replace latch switch A and short switch. For U.S.A. models, also replace power relay B (Part No. AEG5J1EG12, Type No. G5J-1-TP) when the continuity check reads shorted contacts (1-2). Then follow the adjustment procedures below.
Interlock switch replacement — In replacing faulty switches, be sure mounting tabs are not bent, broken or otherwise deficient in their ability to hold the switches.

1. Adjustment of latch switch A, latch switch B and short switch

(A) When mounting the latch switch A, latch switch B and short switch to the door hook assembly, mount the latch switch A, the latch switch B and the short switch to the door hook assembly as shown in **Fig. 40.**

NOTE: **No specific adjustment during installation of latch switch A, the short switch and latch switch B to the door hook is necessary.**

(B) When mounting the door hook assembly to the oven assembly, adjust the door hook assembly by moving it in the direction of arrow in **Fig. 41** so that the oven door will not have any play in it. Check for play in the door by pulling the door assembly. Make sure that the latch keys move smoothly after adjustment is completed. Completely tighten the screws holding the door hook assembly to the oven assembly.

2. Measurement of microwave output

The power output of the magnetron can be determined by performing a simple water heating test as described below.
Necessary Equipment:
*Two 1 liter beakers *Glass thermometer
*Wrist watch or stopwatch

NOTE: **Check the line voltage under load. Low voltage will lower the magnetron output. Take the temperature readings and heating time as accurate as possible.**

(A) Fill each beaker with exactly one liter of tap water. Stir the water using the thermometer and record each beaker's temperature (recorded as T1A and T1B).

(B) Place both beakers on the center of glass cook plate.
Set the oven for High power and heat it for exactly two minutes.

(C) Stir the water again and read the temperature of each beaker (recorded as T2A and T2B).

(D) Obtain the temperature rise by using the following formula:

$$\text{Average temperature rise} = \frac{(T2A + T2B) - (T1A + T1B)}{2}$$

The normal temperature rise for these models should be 16° to 20°F (8.9° to 11.5°C) at the "High" power selection with the oven operating at the specified line voltage.

(E) To obtain the power output, multiply the average temperature rise by 39 (or 70 if thermometer is in Celsius).
Example:
If you find average temperature rise of 18°F, the ovens output is $18 \times 39 = 702$ watts.

NOTE: **This test may be conducted by heating one liter of water for one minute if only one beaker is available. In this instance you will find the temperature rise being smaller than the above specifications due to the microwave absorption characteristic. You may judge the magnetron to be normal when the temperature rise is greater than 13.5°F(or 7.5°C).**

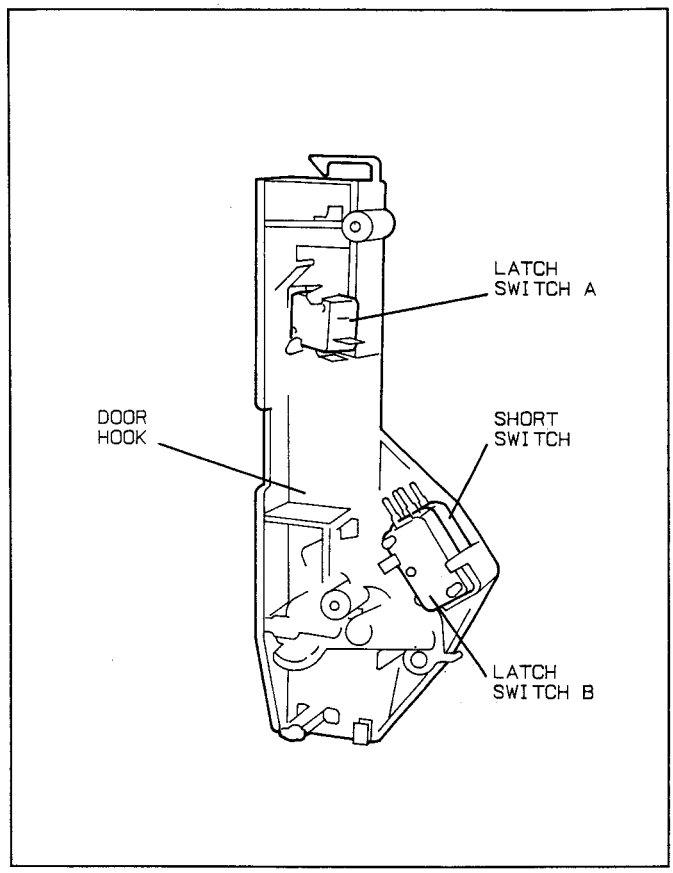
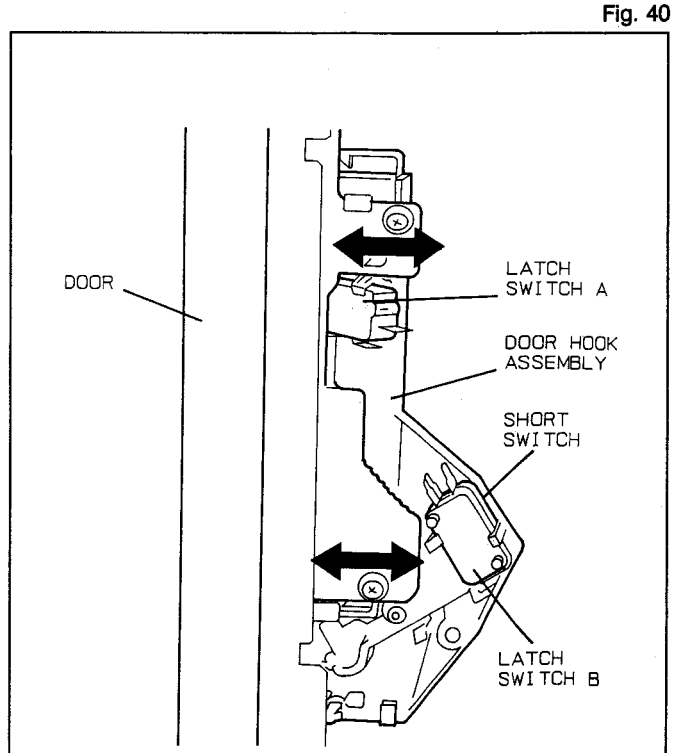


Fig. 40



Please confirm that the gap between the switch housing and switch actuator levers is no more than 1.0mm when the door is closed.

Fig. 41

PROCEDURE FOR MEASURING MICROWAVE ENERGY LEAKAGE

WARNING

Check for radiation leakage after every servicing. Should the leakage be more than 2 mW/cm² (1mW/cm² for Canada) inform the MSC, PHI, PSC or MELCA immediately. After repairing or replacing any radiation safety device, keep a written record for future reference, as required by D.H.H.S and NHW regulation. This required must be strictly observed. In addition, the leakage reading must be recorded on the service repair ticket while in the customer's home.

NOTE: The U.S. government standard is 5 mW/cm² while in the customer's home. 2mW/cm² stated here is our own voluntary standard. (1mW/cm² for Canada)

1. Equipment

*Electromagnetic radiation monitor
*Glass thermometer 212°F or 100°C
*600cc glass beaker

2. Procedure for measuring radiation leakage.

Note before measuring

(1) Do not exceed meter full scale deflection. Leakage monitor should initially be set to the highest scale.
(2) To prevent false readings the test probe should be held by the grip portion of the handle only and moved along the shaded area shown in ***Fig. 43*** *no faster than 1 inch/sec (2.5 cm/sec)*
(3) Leakage with the outer panel removed·····less than 5mW/cm²
(4) Leakage for a fully assembled oven with door normally closed····· less than 2mW/cm² (1mW/cm² for Canada)
(5) Leakage for a fully assembled oven [Before the latch switch (primary) is interrupted] while pulling the door ·····less than 2mW/cm²

(A) Pour 275 ± 15cc (9ozs ± 1/2oz) of 20 ± 5°C (68 ± 9°F) water in a beaker which is graduated to 600cc, and place the beaker in the center of the oven.
(B) Set the radiation monitor to 2450MHz and use it following the manufacturer's recommended test procedure to assure correct results.
(C) When measuring the leakage, always use the 2 inch (5cm) spacer supplied with the probe.
(D) Press the start pad or turn on the timer and with the magnetron oscillating, measure the leakage by holding the probe perpendicular to the surface being measured.

(1) Measurement with the outer panel removed.
Whenever you replace the magnetron, measure for radiation leakage before the outer panel is installed and after all necessary components are replaced or adjusted. Special care should be taken in measuring around the magnetron. **(Fig. 42)**

WARNING

Avoid contacting any high voltage parts.

(2) Measurements with a fully assembled oven. (Fig. 43)
After all components, including the outer panel are fully assembled, measure for radiation leakage around the door periphery, the door viewing window, the exhaust opening and air inlet openings.

3. Record keeping and notification after measurement

(A) After any adjustment or repair to a microwave oven, a leakage reading must be taken. Record this leakage reading on the repair ticket even if it is zero.
A copy of this repair ticket and the microwave leakage reading should be kept by repair facility.
(B) Should the radiation leakage be more than 2 mW/cm² (1mW/cm² for Canada) after determining that all parts are in good condition, functioning properly, and genuine replacement parts as listed in this manual have been used, immediately notify the MSC, PHI, PSC or MELCA.

4. At least once a year, have the radiation monitor checked for calibration by its manufacturer.

WARNING

AVOID CONTACTING ANY HIGH VOLTAGE PARTS.

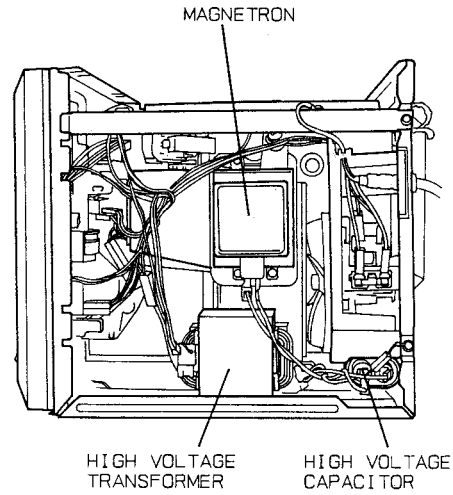
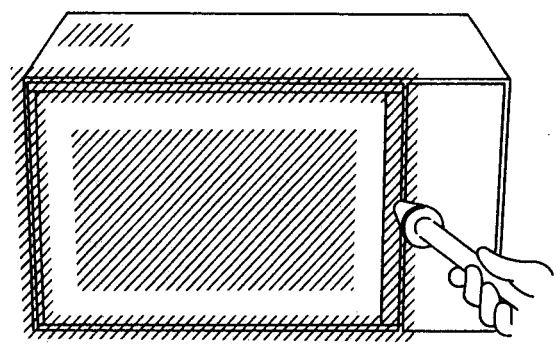


Fig. 42



MOVE PROBE ALONG SHADED AREA (////)
AROUND EXHAUST OPENINGS (as shown)
AND AROUND AIR INLET OPENING

Fig. 43

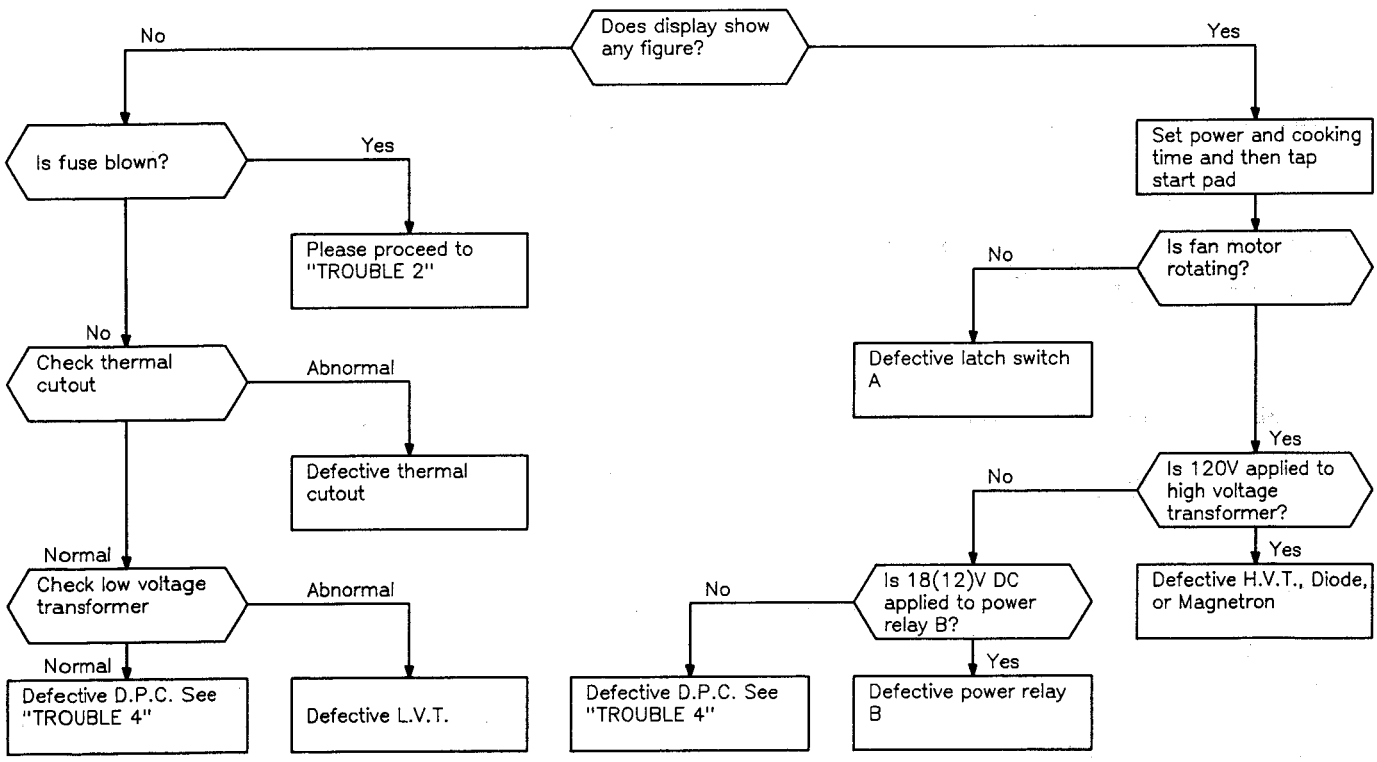
TROUBLESHOOTING GUIDE

CAUTION

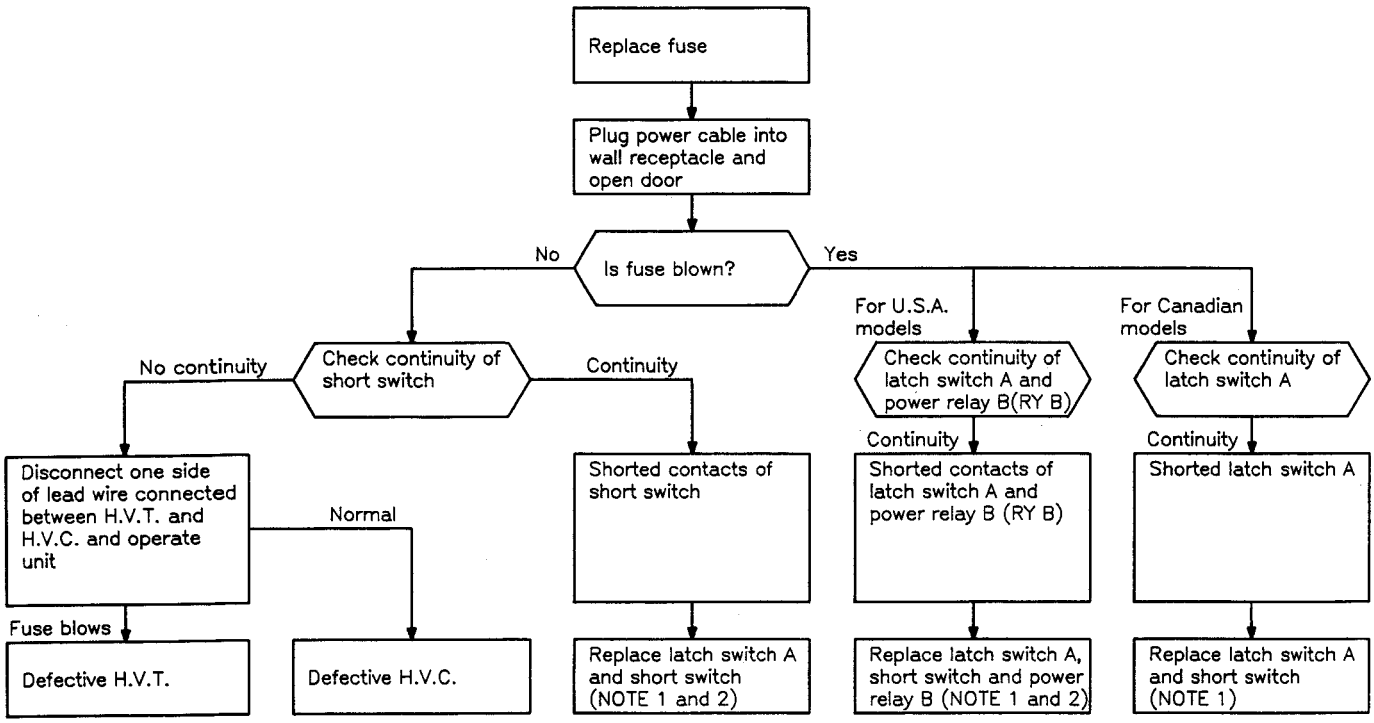
1. Check grounding before checking for trouble.
2. Be careful of the high voltage circuit.
3. Discharge high voltage capacitor. (See page 15.)
4. When checking the continuity of the switches or the high voltage transformer, disconnect one lead wire from these parts and then check continuity with the AC plug removed. To do otherwise may result in a false reading or damage to your meter.
5. Do not touch any parts of the circuitry on the digital programmer circuit, since static electric discharge may damage this control panel.
   Always touch yourself to ground while working on this panel to discharge any static charge in your body.
6. A 120V AC is present at the shaded area ▩ of the digital programmer circuit (Terminals of power relaies and primary circuit of low voltage transformer). When troubleshooting, be cautious of possible electrical shock hazard.

First of all operate the microwave oven following the correct operating procedures described on pages 31 ~ 33 in order to find the exact cause of any trouble.

【TROUBLE 1】 Oven does not start cooking

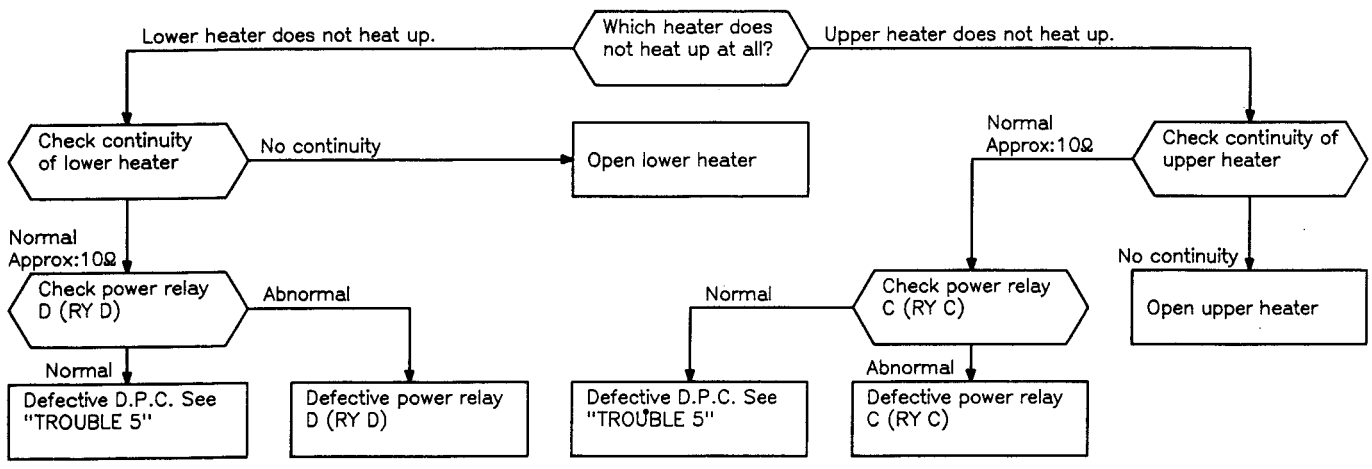


【TROUBLE 2】 Fuse is blown.


Replace fuse
Plug power cable into wall receptacle and open door
Is fuse blown?
No
Yes
For U.S.A. models
For Canadian models
Check continuity of short switch
No continuity
Continuity
Check continuity of latch switch A and power relay B(RY B)
Check continuity of latch switch A
Continuity
Continuity
Disconnect one side of lead wire connected between H.V.T. and H.V.C. and operate unit
Normal
Shorted contacts of short switch
Shorted contacts of latch switch A and power relay B (RY B)
Shorted latch switch A
Fuse blows
Defective H.V.T.
Defective H.V.C.
Replace latch switch A and short switch (NOTE 1 and 2)
Replace latch switch A, short switch and power relay B (NOTE 1 and 2)
Replace latch switch A and short switch (NOTE 1)

NOTE 1: All these switches must be replaced at same time.
(Refer to page 23 for adjustment instructions.)
NOTE 2: Check continuity of power relay B's contacts (between 1 and 2) and if it has continuity, replace power relay B too.

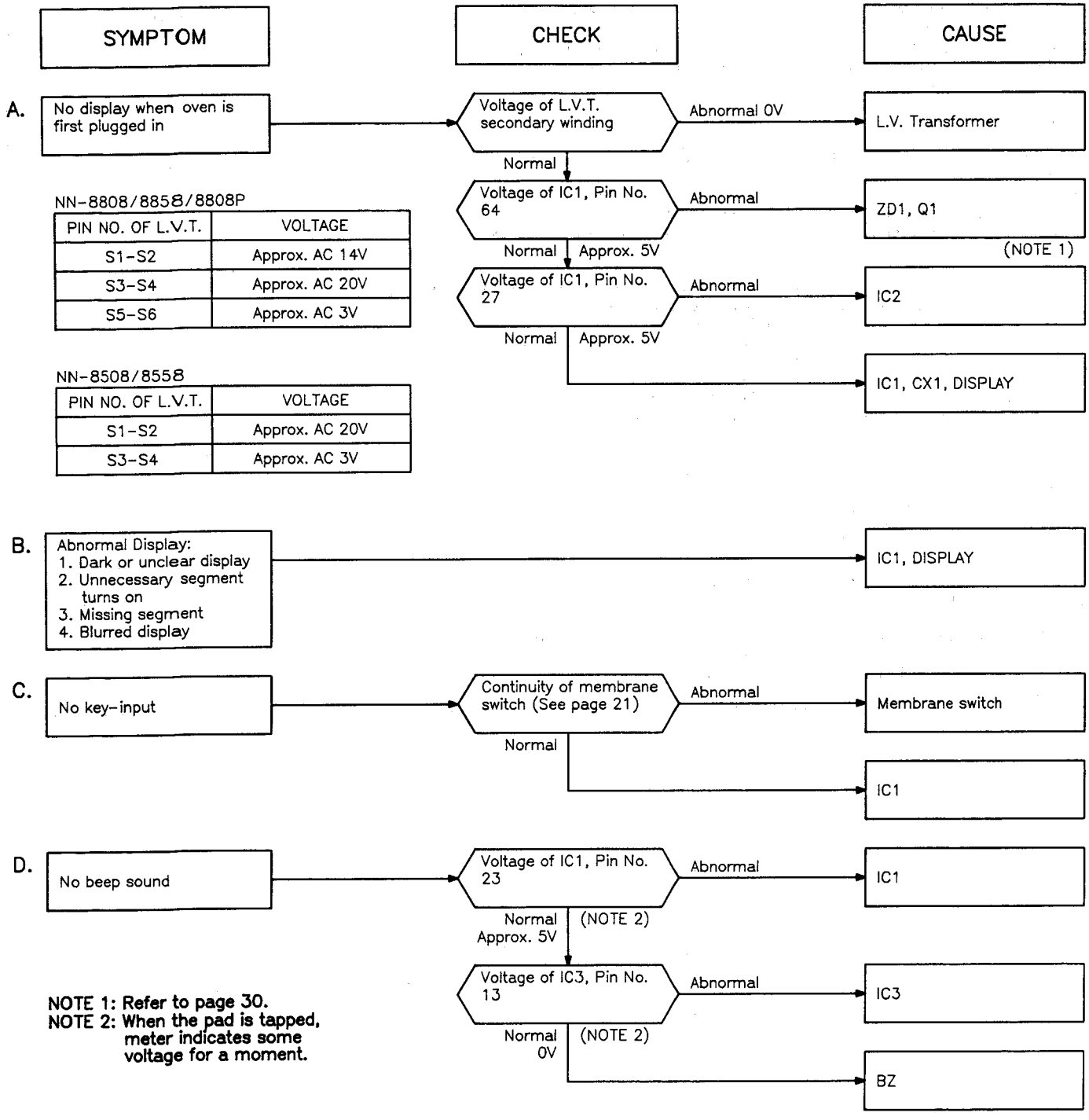
【TROUBLE 3】 Microwave cooking program works normally, but bake and/or broil cooking programs do not.



[TROUBLE 4] Other troubles

CONDITIONS	POSSIBLE CAUSE	NOTE
Microwave output power is low. First of all, check if output power is really low by following "Measurement of microwave output" on page 23.	1. Decrease in power source voltage. 2. Aging change of magnetron.	
Oven lamp and turntable motor turn on when door is open.	1. Shorted contacts of latch switch A.	For U.S.A. models only.
Oven lamp and turntable motor turn on when power supply cord is plugged into wall receptacle.	1. Open latch switch B. 2. Shorted contacts of power relay A. (RYA) 3. Defective D.P.C.	
Microwave oven does not operate normally, when auto sensor cooking is selected.	1. Open or loose wiring of sensor terminals from D.P.C. 2. Defective humidity sensor. 3. Defective D.P.C. (See trouble 5-G, H on page 29.)	
Magnetron oscillates for 1.5 ~ 5 minutes after start pad is tapped, then stops all functions of the oven.	1. Defective fan motor. 2. Defective thermal cutout. 3. Faulty power relay E. 4. Defective D.P.C.	
Upper or lower heater turns on when microwave cooking. In this case, this trouble should be causing fuse and/or home circuit breaker to open.	1. Faulty power relay C or D. 2. Defective D.P.C.	
Combination cooking is not working in correct order.	1. Defective D.P.C.	
"FF FF" appeares in display window after 2 minutes elapsed in the bake, broil or combination cooking mode	1. Short or open oven temp sensor 2. Defective D.P.C.	

【TROUBLE 5】 Troubles related to Digital Programmer Circuit. (Refer to schematic diagram on page 39.)



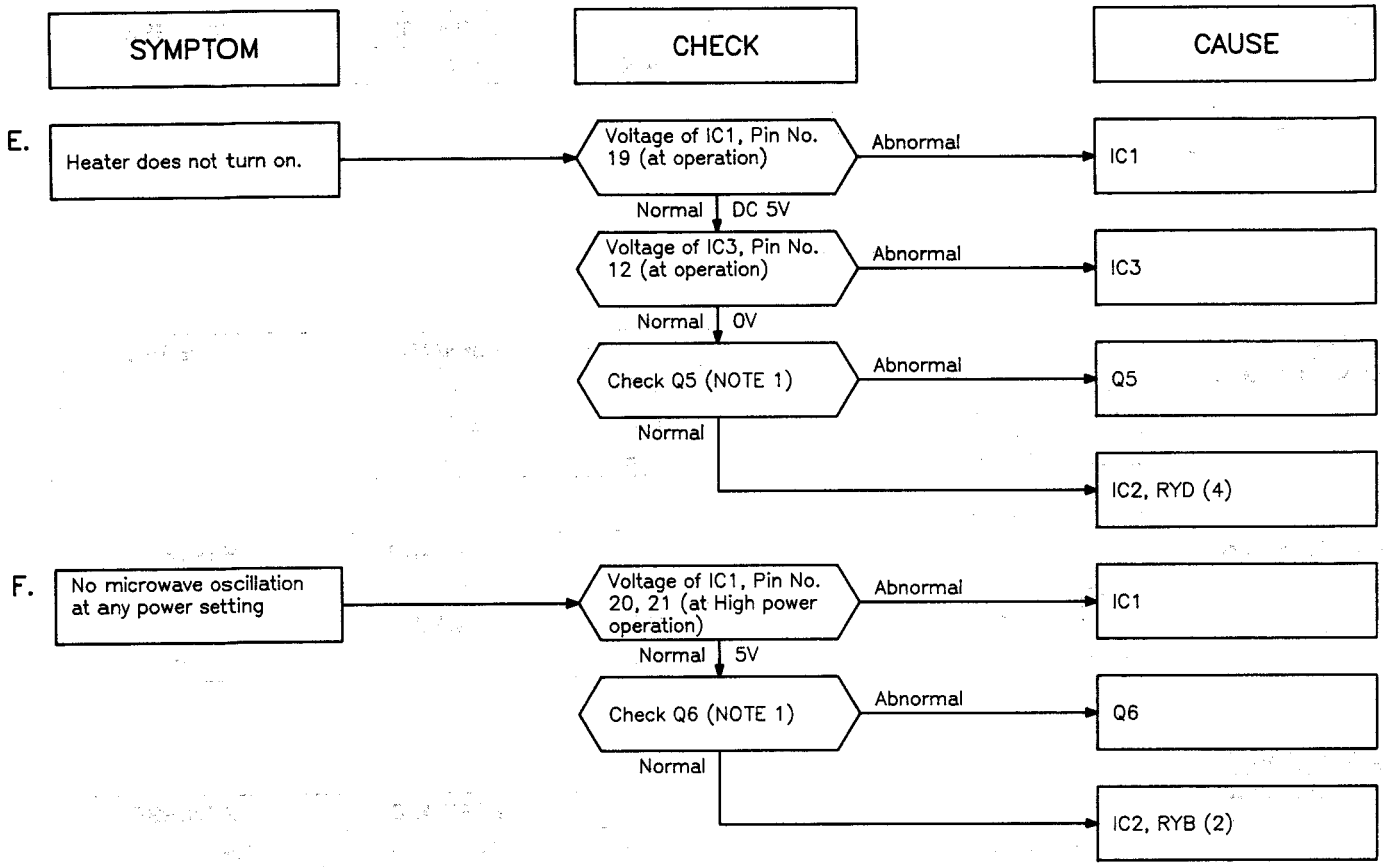
NN-8808/8858/8808P

PIN NO. OF L.V.T.	VOLTAGE
S1-S2	Approx. AC 14V
S3-S4	Approx. AC 20V
S5-S6	Approx. AC 3V

NN-8508/8558

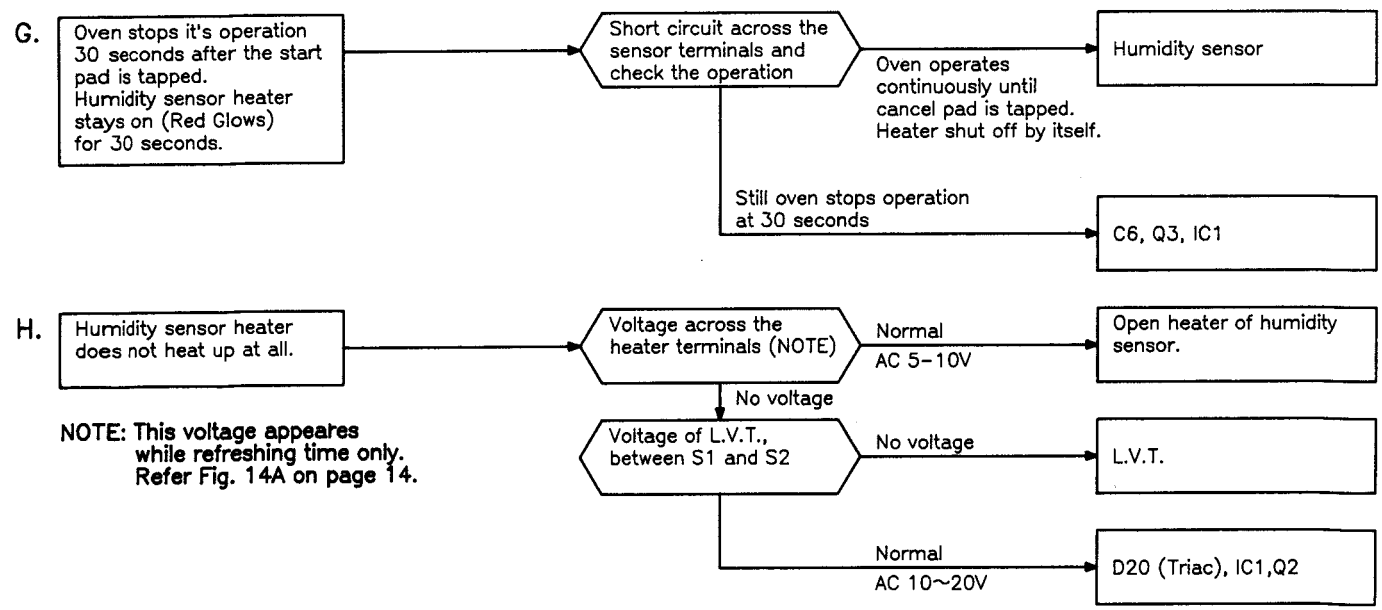
PIN NO. OF L.V.T.	VOLTAGE
S1-S2	Approx. AC 20V
S3-S4	Approx. AC 3V

NOTE 1: Refer to page 30.
NOTE 2: When the pad is tapped, meter indicates some voltage for a moment.



NOTE 1: **Refer to page 30.**

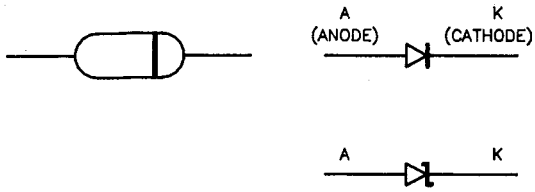
TO BE CONTINUED FOR HUMIDITY SENSOR MODELS (Refer to schematic diagram on page 39.)


G.
Oven stops it's operation 30 seconds after the start pad is tapped.
Humidity sensor heater stays on (Red Glows) for 30 seconds.
Short circuit across the sensor terminals and check the operation
Oven operates continuously until cancel pad is tapped.
Heater shut off by itself.
Humidity sensor
Still oven stops operation at 30 seconds
C6, Q3, IC1
H.
Humidity sensor heater does not heat up at all.
Voltage across the heater terminals (NOTE)
Normal
AC 5-10V
Open heater of humidity sensor.
No voltage
Voltage of L.V.T., between S1 and S2
No voltage
L.V.T.
Normal
AC 10~20V
D20 (Triac), IC1,Q2

NOTE: **This voltage appeares while refreshing time only. Refer Fig. 14A on page 14.**

HOW TO CHECK THE SEMICONDUCTORS USING AN OHM METER

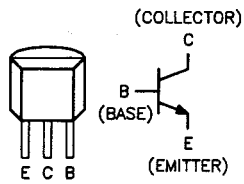
Diode



	FORWARD	REVERSE
A-K	SMALL	∞

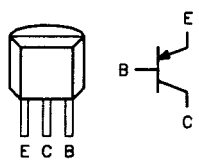
Transistor

NPN Transistor



	FORWARD	REVERSE
B-E	SMALL	∞
B-C	SMALL	∞
C-E	∞	∞

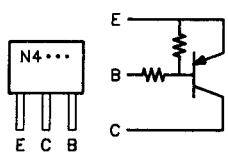
PNP Transistor



	FORWARD	REVERSE
E-B	SMALL	∞
C-B	SMALL	∞
C-E	∞	∞

Digital Transistor

PNP Transistor



	FORWARD	REVERSE
E-B	10kΩ~30kΩ	10kΩ~30kΩ
C-B	50kΩ~90kΩ	∞
C-E	40kΩ~80kΩ	∞

DIGITAL PROGRAMMER CIRCUIT TEST PROCEDURE

1. To Set Clock

OPERATION	DISPLAY
1. Plug the power supply cord into wall receptacle.	88:88
2. Tap Clock pad.	✳
3. Enter time of day (TOD) by tapping appropriate number pads.	11✳25
4. Tap Clock pad. TOD has now been registered into the digital programmer circuit and will count up by minutes.	11:25

2. Time Cooking For Two Stage

OPERATION	DISPLAY
1. Place a water load in the oven.	
2. Tap Power pad once for High power. (1st stage)	HIGH
3. Set for 5 seconds by tapping Number pad.	5 HIGH
4. Tap Power pad 3 times for Medium power. (2nd stage)	MED
5. Set for 10 seconds by tapping Number pad.	10 MED
6. Tap Start pad.	5 HIGH
7. When first stage cooking time has elapsed, oven automatically switches to 2nd stage cooking.	10 MED
8. When 2nd stage cooking time has elapsed, oven beeps 5 times and shuts off.	

3. Auto Weight Defrost

OPERATION	DISPLAY
1. Tap Auto Weight Defrost pad.	AUTO DEF 0.0
2. Set the weight to 1 pound by tapping 1.0 lb pad once.	AUTO DEF 1.0
3. Tap Start pad.	AUTO DEF 12:00
4. Tap Stop/Reset pad twice.	• Oven shuts off. • The display window will show TOD again.

4. Auto Weight Combination

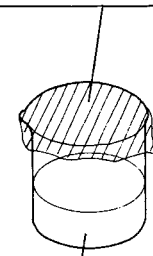
OPERATION	DISPLAY
1. Tap Auto Weight Combination pad 5 times.	AUTO COMB 5
2. Set the weight for 4 pounds by tapping 1.0 (lb) pad 4 times.	AUTO COMB 4.0
3. Tap Start pad.	AUTO COMB 1H 28
4. Tap Stop/Reset pad twice.	• TOD appears in display window.

5. Auto Reheat (NN-8508/8558)

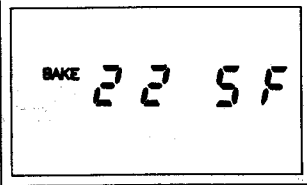
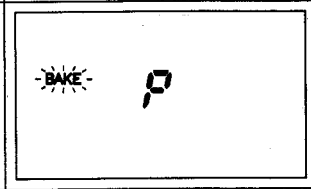
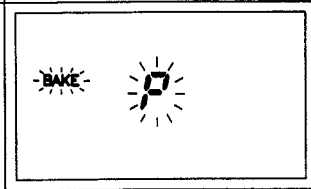
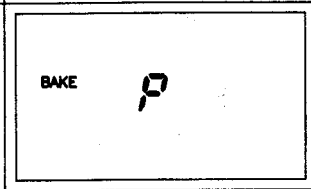
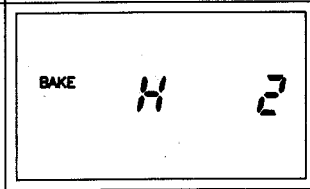
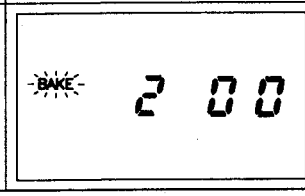
OPERATION	DISPLAY
1. Tap Auto Reheat 1-Pastry pad 4 times.	AUTO REHEAT 1 - 4
2. Tap Start pad.	AUTO REHEAT 40

6. Auto Sensor Cooking (NN-8808/8858/8808P)

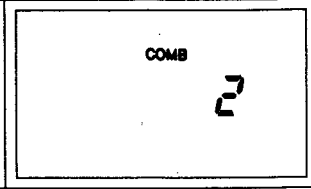
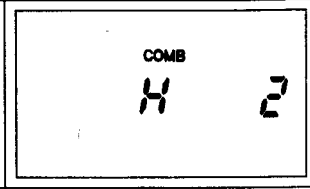
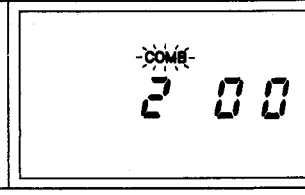
NOTE: Make sure that the outer panel is installed before Auto Sensor Cooking Test, since Auto Sensor function does not operate properly without the outer panel.

OPERATION	DISPLAY
1. Pour 150 ± 15cc (4.5 ± 1/2 ozs) of room temperature water in a beaker, securely cover the top of the beaker with plastic wrap and place the beaker in the center of the oven.	COVER THE TOP OF THE BEAKER WITH PLASTIC WRAP  150 ± 15cc (4.5±1/2 ozs) ROOM TEMPERATURE WATER
2. Tap Auto Sensor CooK Pad once.	AUTO COOK 1
3. Tap Start Pad.	AUTO COOK 1
4. The humidity sensor detects steam about 2 to 4 minutes after the Start Pad is tapped. Auto Sensor Cooking (T1) automatically switches to time cooking (T2). "1" disappears with beep sounds and the remainder of cooking time appears in display window. **NOTE: Cooking time will vary depending on the water temperature, the shape of beaker or the power source voltage.** **NOTE: K factor for 1 program is 2.5. Please refer to page 14 in detail.**	AUTO COOK 3 45 AUTO COOK 8 45 **NOTE: If 3 45 to 8 45 appears, AUTO SENSOR FUNCTION is normal.**
5. When the balance of cooking time has elapsed, oven stops and beeps five times.	• TOD reappears in the display window.

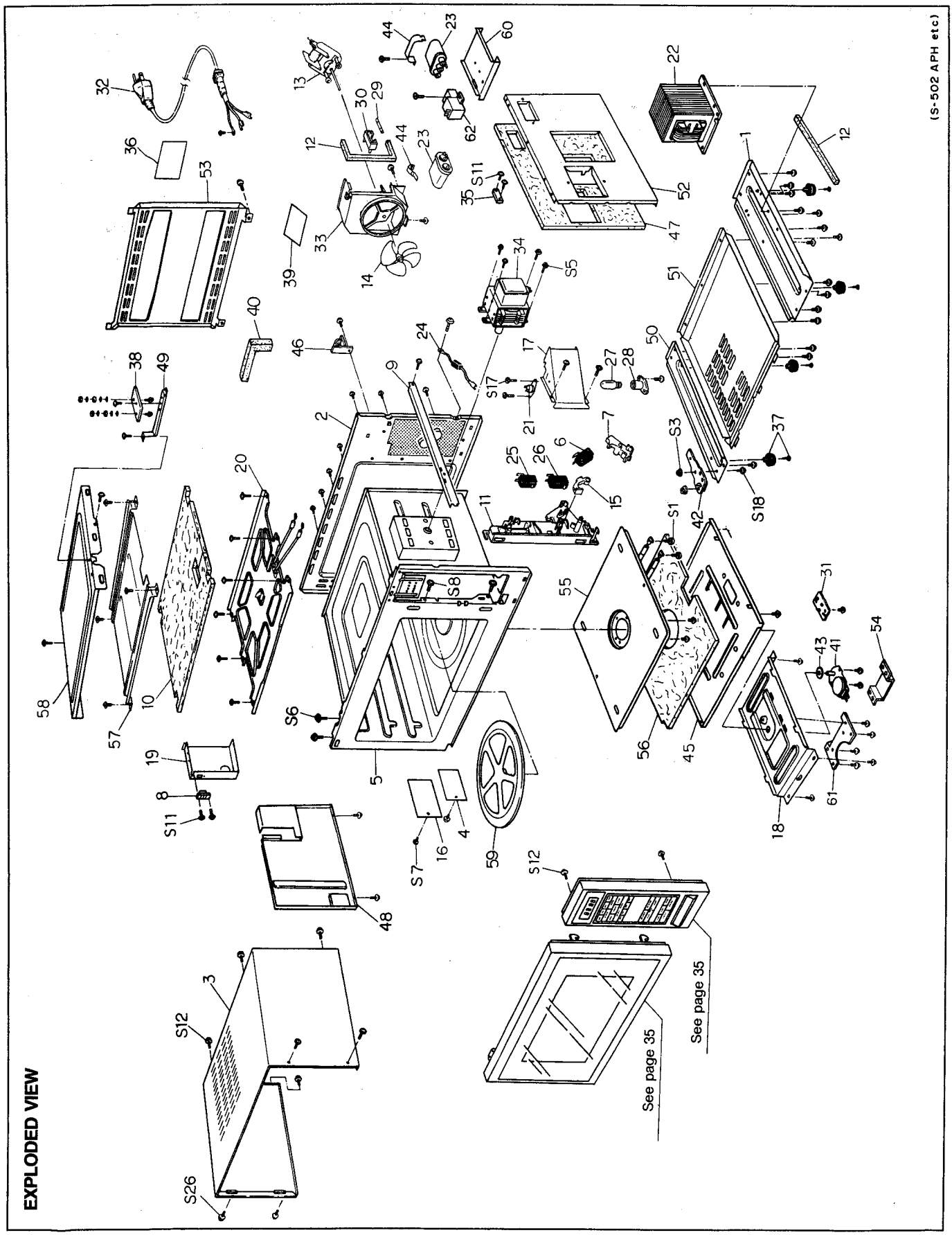
7. Bake Cooking with Preheat

OPERATION	DISPLAY
1. Tap Bake pad twice.	
2. Tap Start pad.	
3. When preheating is completed, oven beeps 3 times. "P" begins to blink.	
4. After completion of preheating, be sure to open the door.	
5. Close the door and set bake cooking time for 2 minutes.	
6. Tap Start pad.	

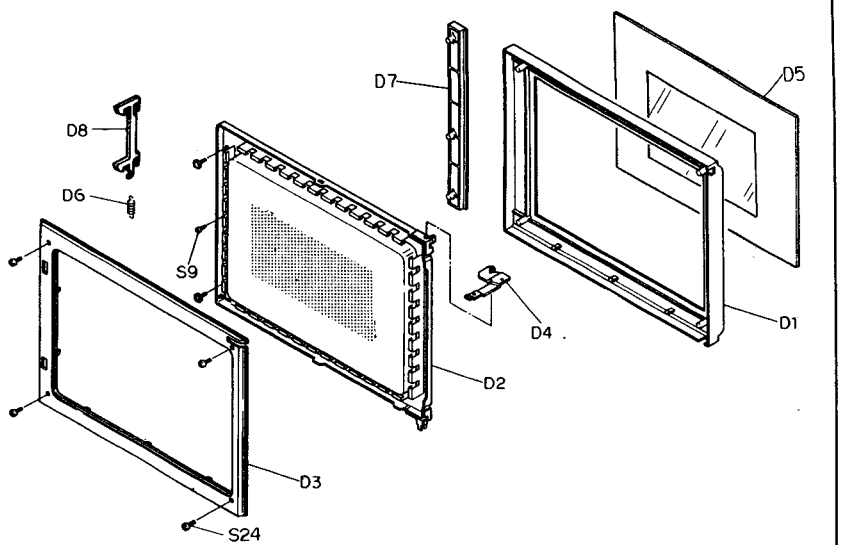
8. Combination Cooking (Time cooking)

OPERATION	DISPLAY
1. Tap combination pad twice.	
2. Set cooking time for 2 minutes.	
3. Tap Start pad.	

EXPLODED VIEW AND PARTS LIST

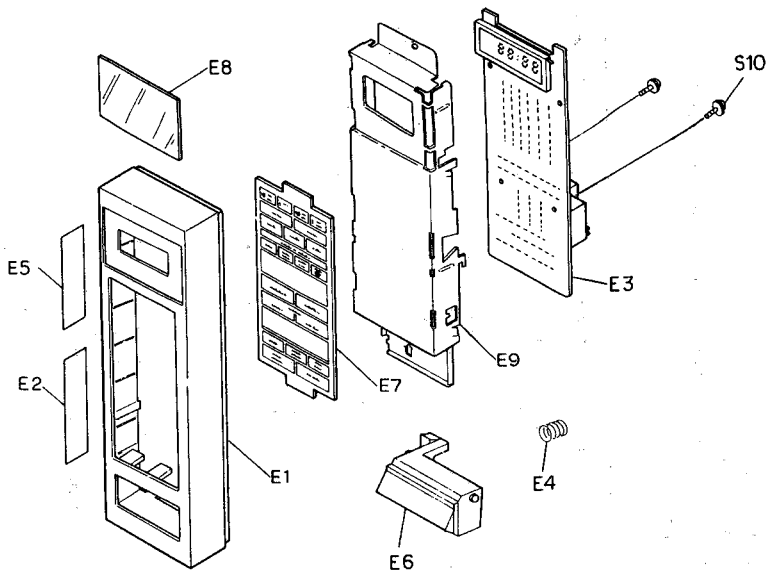


DOOR ASSEMBLY



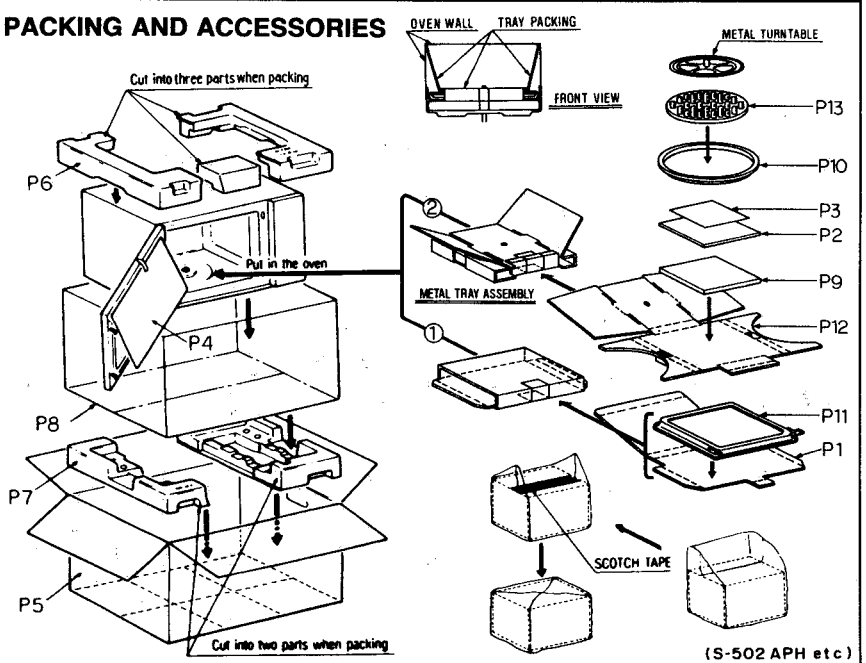
(S-502 APH etc)

ESCUTCHEON BASE ASSEMBLY



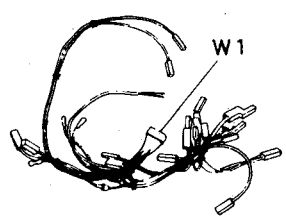
(S-502 APH etc)

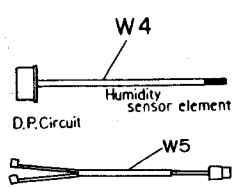
PACKING AND ACCESSORIES

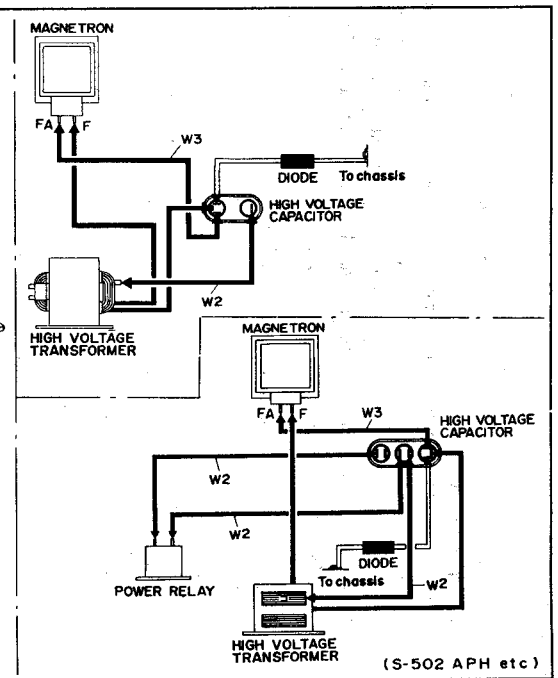


(S-502 APH etc)

WIRING MATERIAL







(S-502 APH etc)

PARTS LIST

NOTE 1: When ordering replacement part(s), please use part number(s) shown in this parts list and also refer to product destination chart on page 3. Do not use description of the part.

2: Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

3: Alphabet marks in Remarks columns (i.e. APH, etc) indicate parts applicable to only specified country models as follows.
APH: For U.S.A. and some of Latin America countries, CPH: For Canada
Parts without these marks can be used for all models.

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
1		A10015020AP	Base	1	
2		A10045020AP	Back panel	1	
3-1		A10095020AP	Outer panel	1	NN-8508, NN-8808, NN-8808P
3-2		A10095040HAP	Outer panel	1	NN-8558, NN-8858
4		A23545020AP	Cover B	1	
5	⚠	A200A5020AP	Oven	1	
6		A61424650AP	Switch	1	Latch switch B (L-3C2-MR)
7		A31374650AP	Hook spacer B	1	
8		A601L4780AP	Humidity sensor	1	NN-8808, NN-8808P, NN-8858
9		A20365020AP	Reinforce bracket B	1	
10		A22435020AP	Adiabatic material B	1	
11	⚠	A30204310AG	Door hook A	1	
12-1		ANE000Z000AA	Cushion rubber C	1	NN-8508, NN-8558, NN-8808, NN-8858
12-2		ANE000Z000AA	Cushion rubber C	2	NN-8808P
13-1		A400A4010AP	Fan motor	1	NN-8508, NN-8558, NN-8808, NN-8858 (24W)
13-2		A400A4060PP	Fan motor	1	NN-8808P (30W)
14		ANE40086W0AP	Fan	1	
15		A31384650AP	Hook spacer C	1	
16		A20555020AP	Cover A	1	
17-1		A400E5020AP	Air guide A	1	NN-8508, NN-8558, NN-8808, NN-8858
17-2		A40255020AP	Air guide A	1	NN-8808P
18		A63235020AP	Motor bracket	1	
19-1		A40245020AP	Exhaust guide A	1	NN-8508, NN-8558
19-2		A40245040AP	Exhaust guide A	1	NN-8808, NN-8808P, NN-8858
20		A630H5020AP	Heater B	1	
21		A61454210AP	Thermal cutout	1	For magnetron
22-1	⚠	A600B4650AP	H.V.Transformer	1	NN-8508, NN-8558, NN-8808, NN-8858 (1.5KVA)
22-2	⚠	A600B5040PP	H.V.Transformer	1	NN-8808P
23-1	⚠	A60904650AP	H.V.Capacitor	1	NN-8508, NN-8558, NN-8808, NN-8858 (0.951μF, AC2000V)
23-2	⚠	A60904650PP	H.V.Capacitor	1	NN-8808P (1.14μF, AC2100V)
24	⚠	A62024000AP	Diode	1	(Si)
25	⚠	ANE61424L0AG	Switch	1	Latch switch A (V-16G-3C26)
26	⚠	ANE6178-5R0	Switch	1	Short switch (L-2C2-MR)
27		ANE6030540AP	Oven lamp	1	(125V, 20W)
28		A61525020AP	Oven lamp socket	1	
29	⚠	ANE6230B00AP	Fuse	1	(15A)
30		A62314000AP	Fuse holder	1	
31		A60325020AP	Terminal plate A	1	
32-1		A900C5020AP	Power supply cord	1	APH, NN-8808P
32-2		A900C5020CP	Power supply cord	1	CPH
33-1		A41445020AP	Orifice	1	NN-8508, NN-8558, NN-8808, NN-8858
33-2		A41445040PP	Orifice	1	NN-8808P
34	⚠	2M210-M1C1	Magnetron	1	
35		A605Y4210AP	Oven temp sensor	1	
36-1		A00064650AP	Warning label	1	APH, NN-8808P
36-2		ANE0006R30CP	Warning label	1	CPH
37		A10084210AP	Rubber foot	4	
38		A60895020AP	Terminal plate B	1	
39		A00335020AP	Fuse label	1	
40		ANE000Z000AB	Cushion rubber A	1	
41		A63265020AP	Turntable motor	1	
42	⚠	A301L4210AP	Lower hinge	1	
43		ANE4071-5G0	Washer	1	
44-1		A61884060AP	Capacitor bracket	1	NN-8508, NN-8558, NN-8808, NN-8858
44-2		ANE6037X00PP	Capacitor bracket	1	NN-8808P
45		A22775020AP	Lower heater panel	1	
46		ANE11408A0AG	Stopper A	1	
47		A22595020AP	Adiabatic material D	1	
48		A22375020AP	Left heater panel	1	
49		A61435020AP	Bracket B	1	
50		A11295020AP	Base B	1	
51		A101A5020AP	Base C	1	
52		A22365020AP	Right heater panel	1	
53		A10585020AP	Back panel cover A	1	
54		A66305020AP	Motor stopper	1	
55		A630G5020AP	Heater A	1	
56		A22425020AP	Adiabatic material A	1	
57		A22785020AP	Inner heater panel	1	
58		A22175020AP	Outer heater panel A	1	
59		A201F5020AP	Metal turntable	1	
60		A62485040PP	Capacitor bracket B	1	NN-8808P
61		A66395020AP	Motor bracket B	1	
62		AEG7H1EG18	Power relay	1	NN-8808P (G7H-1142T)

DOOR ASSEMBLY

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
D1-1	⚠	A30015020AP	Door A assy	1	NN-8508, NN-8808, NN-8808P
D1-2	⚠	A30015040HAP	Door A assy	1	NN-8558, NN-8858
D2	⚠	A302K5020AP	Door E assy	1	
D3-1	⚠	A30855020AP	Door C	1	NN-8508, NN-8808, NN-8808P
D3-2	⚠	A30855040HAP	Door C	1	NN-8558, NN-8858
D4	⚠	A300B4210AP	Upper hinge	1	
D5-1		A31465020AP	Door screen B assy	1	NN-8508, NN-8808 APH, NN-8808P
D5-2		A31465020HCP	Door screen B assy	1	NN-8558, NN-8808 CPH
D5-3		A31465040HAP	Door screen B assy	1	NN-8858
D6		A30214000AP	Door key spring	1	
D7		A30125020AP	Door handle	1	
D8		A30184650AP	Door key A	1	

PACKING AND ACCESSORIES

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
P1		A01175020AP	Packing B	1	
P2-1		A00035020AP	Instruction book	1	APH
P2-2		A00035020CP	Instruction book	1	CPH
P2-3		A00035040PP	Instruction book	1	NN-8808P
P3		ANE0169B60CP	Servicenter list	1	CPH
P4		A01074060AP	Door sheet	1	
P5-1		A01025020AP	Outer case	1	NN-8508
P5-2		A01025020HCP	Outer case	1	NN-8558
P5-3		A01025040AP	Outer case	1	NN-8808 APH
P5-4		A01025040CP	Outer case	1	NN-8808 CPH
P5-5		A01025040PP	Outer case	1	NN-8808P
P5-6		A01025040HAP	Outer case	1	NN-8858
P6		A01045020AP	Upper filler	1	
P7		A01055020AP	Lower filler	1	
P8		ANE01068U0AP	Vinyl cover	1	
P9-1		A000B5020AP	Cook book	1	APH, NN-8808P
P9-2		A000B5020CP	Cook book	1	CPH
P10		A06015020AP	Metal tray	1	
P11		A060W5020AP	Oven pan	1	
P12		A01085020AP	Tray packing	1	
P13		A06485020AP	Spatter shield	1	

ESCUTCHEON BASE ASSEMBLY

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
E1-1		A80345020AP	Escutcheon base	1	NN-8508 (NOTE 4)
E1-2		A80345020HCP	Escutcheon base	1	NN-8558 (NOTE 4)
E1-3		A80345040AP	Escutcheon base	1	NN-8808, NN-8808P (NOTE 4)
E1-4		A80345040HAP	Escutcheon base	1	NN-8858 (NOTE 4)
E2-1		A01575020AP	Name plate	1	NN-8508
E2-2		A01575040AP	Name plate	1	NN-8808 APH
E2-3		A05245040PP	Name plate	1	NN-8808P
E2-4		A01575040HAP	Name plate	1	NN-8858
E3-1		A603L5020AP	D.P.Circuit assy	1	NN-8508, NN-8558 (W/Component)
E3-2		A603L5040AP	D.P.Circuit assy	1	NN-8808, NN-8858 (W/Component)
E3-3		A603L5040PP	D.P.Circuit assy	1	NN-8808P (W/Component)
E4		ANE80378A0AG	Spring	1	
E5-1		ANE0245X00AP	DHHS label	1	APH, NN-8808P
E5-2		ANE0411K20CP	CSA caution label	1	CPH
E6-1		A80725020AP	Door opening button	1	NN-8508, NN-8808, NN-8808P
E6-2		A80725040HAP	Door opening button	1	NN-8558, NN-8858
E7-1		A64795020AP	Membrane switch	1	NN-8508
E7-2		A64795020HCP	Membrane switch	1	NN-8558
E7-3		A64795040AP	Membrane switch	1	NN-8808, NN-8808P
E7-4		A64795040HAP	Membrane switch	1	NN-8858
E8-1		A81265020AP	Smoke panel	1	NN-8508, NN-8808, NN-8808P
E8-2		A81265040HAP	Smoke panel	1	NN-8558, NN-8858
E9		A81275020AP	Bracket	1	

WIRING MATERIAL

Ref. No.		Part No.	Part Name & Description	Pcs/ Set	Remarks
W1-1		A030A5020AP	Lead wire harness	1	APH
W1-2		A030A5020CP	Lead wire harness	1	CPH
W1-3		A030A5040PP	Lead wire harness	1	NN-8808P
W2-1		A03504000AP	Lead wire	1	NN-8508, NN-8558, NN-8808, NN-8858
W2-2		A03505040PP	Lead wire	3	NN-8808P
W3-1		A03514000AP	Lead wire	1	NN-8508, NN-8558, NN-8808, NN-8858 (NOTE 5)
W3-2		A03515040PP	Lead wire	1	NN-8808P
W4		A03535040AP	Lead wire	1	NN-8808, NN-8808P, NN-8858
W5		A03545040PP	Lead wire	1	NN-8808P

NOTE 4: Please order applicable name plate and either DHHS label or CSA caution label together.

NOTE 5: When this lead wire is open, replace together with magnetron.

(S-502 APH etc)

STANDARD PARTS

Ref. No.		Part No.	Description	Size (mm)	Q'ty	Usage
S1		XYN5+C10FN	Screw	5X10	2	Heater A
S2		XNW4EFN	Nut	M4	2	Heater B
S3		XNWANE5ES	Nut	M5	2	Lower hinge
S4		XTWANE35+11B	Screw	3.5X11	2	Heater B
					4	Inner heater panel
S5		XTWANE4+10RU	Screw	4X10	4	Magnetron
S6		XSWANE5+10U	Screw	5X10	2	Upper hinge
S7		XST4+5VS	Screw	4X5	2	Cover A, B
S8		XTW4+12T	Screw	4X12	2	Door hook A
S9		XTNANE4+8B	Screw	4X8	3	Door handle
					1	Capacitor bracket (For NN-8808P)
S10		XTW3+12B	Screw	3X12	2	D.P.Circuit
S11		XTWANE3+10BN	Screw	3X10	2	Oven temp sensor
					2	Humidity sensor
S12		XTWANE4+12D	Screw	4X12	1	Power supply cord ground
					4	Outer panel
					3	H.V.Transformer (For NN-8508, NN-8558, NN-8808, NN-8858)
					4	H.V.Transformer (For NN-8808P)
					1	Stopper A
					2	Fan motor bracket B
					2	Base B
					1	Escutcheon base
					2	Base C
					4	Base (For NN-8508, NN-8558, NN-8808, NN-8858)
					5	Base (For NN-8808P)
					1	Reinforce bracket
S13		XTWANE4+8S	Screw	4X8	2	Fan motor
S14		XTW3+8B	Screw	3X8	1	Diode ground (For NN-8508, NN-8558, NN-8808, NN-8858)
					2	Terminal plate
S15		XTWANE4+12B	Screw	4X12	1	Capacitor bracket (For NN-8508, NN-8558, NN-8808, NN-8858)
S16		XWG4FN	Washer	M4	2	Terminal plate
S17		XTWANE4+8BN	Screw	4X8	2	Air guide A
					1	Thermal cutout (For magnetron)
					1	Outer heater panel A
S18		XYEANE5+E20T	Screw	5X20	2	Lower hinge
S19		XNG4EFN	Nut	M4	2	Terminal plate
S20		XWA4BFN	Washer	M4	2	Terminal plate
S21		XVG4D18SN	Bolt	4X18	2	Heater A
S22		XTWANE4+12BN	Screw	4X12	2	Inner heater panel
					2	Turntable motor
					4	Back panel
					1	Terminal plate B
					1	Outer heater panel A
					4	Motor bracket
					2	Back panel cover A
					2	Left heater panel
					2	Right heater panel
					1	Lower heater panel
					2	Heater A
					4	Motor stopper
S23		XTWANE4+8B	Screw	4X8	1	Diode ground (For NN-8808P)
					1	Power relay
					2	Capacitor bracket B
S24		XTBANE4+12FK	Screw	4X12	4	Door C (NN-8508, NN-8808, NN-8808P)
		XTBANE4+12FC	Screw	4X12	4	Door C (NN-8558, NN-8858)
S25		XTWANE3+10S4	Screw	3X10	1	Oven lamp socket
S26		XTC4+12BC	Screw	4X12	4	Outer panel (NN-8508, NN-8808, NN-8808P)
		XTC4+10BC	Screw	4X10	4	Outer panel (NN-8558, NN-8858)

MISCELLANEOUS

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
DISP	A64565040AP	Fluorescent Tube	1	
SPACER	A82844210AP	Spacer Cushion	1	For DISP
T1	A62495020AP	Low Voltage Transformer	(1)	NN-8508/8558 ETP43K104A
	A62495040AP	Low Voltage Transformer	(1)	NN-8808/8858 ETP43K98A
	A62495040PP	Low Voltage Transformer	(1)	NN-8808P ETP43K100A
CN1	AEEMMA15509W	9 pin connector	1	
CN2,3	AEEMMA00F04W	4 pin connector	2	
CN4	AEEM11FDZBTM	11 pin connector	1	
CN5	AEEMMA07507W	7 pin connector	1	
BZ	AEFB22EP2002	Buzzer	1	2.04kHz
CX1	AEFFT4R19GW	Ceramic Resonator	1	4.19MHz
RY1,5	AEAWJZDC18A	Power Relay	2	
RY2,3,4	AEG5JIEG12A	Power Relay	3	
ZNR	ERZC10DK471F	ZNR	1	
	AT00X5020AP	D.P.C. Part Box	1	NN-8508/8558
	AT00X5040AP	D.P.C. Part Box	1	NN-8808(P)/8858

CAPACITORS

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
C1	ECEA1VU102E	1000μF ±20% 35V	1	
C2	ECEA1VU221E	220μF ±20% 35V	1	
C3	ECEA1CU220E	22μF ±20% 16V	1	
C5	ECEA1CU100E	10μF ±20% 16V	1	NN-8808(P)/8858
C6	ECEA1HUR47B	0.47μF ±20% 50V	1	NN-8808(P)/8858
C7	ECBT1H102KB5	0.001μF ±10% 50V	1	NN-8808(P)/8858
C10,11,12,14	ECBT1E103ZF5	0.01μF −20%+80% 25V	1	
C13	ECEA1HU4R7E	4.7μF ±20% 50V	1	

SEMICONDUCTORS

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
IC1	AEIC50940124	L.S.I. (MOS 8bit Microcomputor)	1	
IC2	AN6752	I.C. (Bipolar Linear IC)	1	
IC3	AEICBA12004	I.C. (Bipolar Linear IC)	1	
Q1	2SD2006-R	Transistor, Si 5W	1	
Q2	UN4211	Transistor, Si 300mW	1	NN-8808(P)/8858
Q3	2SC1685-R	Transistor, Si 250mW	1	NN-8808(P)/8858
Q4	2SA564A-R	Transistor, Si 250mW	1	NN-8808P
Q5	UN4123	Transistor, Si 300mW	1	
Q6	2SC1318-R	Transistor, Si 400mW	1	
D1,2	AEDNERA1502	Diode, Si	2	
D3,4,5,6,7, 8,9,10	MA195-(TA5)	Diode, Si	8	
D20	AESMAC03DGMB	Triac	1	
ZD1	AEDZ5R6ES2T1	Zener Diode, Si	1	
ZD2	AEDZ4R7ES3T1	Zener Diode, Si	1	
ZD3	AEDZ24ES3T1	Zener Diode, Si	1	NN-8808P
ZD4	AEDZ4R3ES3T1	Zener Diode, Si	1	NN-8808(P)/8858
ZD5	AEDZ15ES3T1	Zener Diode, Si	1	

RESISTORS

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
R1,2	ERDS2TJ201T	200Ω ±5% 1/4W	2	
R3,19,20, 21,24,41, 42,43	ERDS2TJ103T	10kΩ ±5% 1/4W	8	
R4,5,23, 28,29,30, 31	ERDS2TJ751T	750Ω ±5% 1/4W	7	
R6,7	ERDS2TJ751T	750Ω ±5% 1/4W	2	NN-8808(P)/8858
R8,9,10, 11	ERDS2TJ181T	180Ω ±5% 1/4W	4	NN-8808(P)/8858
R12,15	ERDS2TJ201T	200Ω ±5% 1/4W	2	NN-8808(P)/8858
R13,14	ERDS2TJ512T	5.1kΩ ±5% 1/4W	2	NN-8808(P)/8858
R16	ERDS2TJ105T	1MΩ ±5% 1/4W	1	NN-8808(P)/8858
R17	EROS2TKF8662	86.6kΩ ±1% 1/4W	1	NN-8808(P)/8858
R18	ERDS2TJ914T	910kΩ ±5% 1/4W	1	
R22,27	ERDS2TJ512T	5.1kΩ ±5% 1/4W	2	
R25	ERDS2TJ105T	1MΩ ±5% 1/4W	1	
R26	ERDS2TJ153T	15kΩ ±5% 1/4W	1	
R32	ERDS2TJ751T	750Ω ±5% 1/4W	1	NN-8808P
R34,35	ERDS2TJ300T	30Ω ±5% 1/4W	2	
R36,37,38, 39	ERDS2TJ470T	47Ω ±5% 1/4W	4	
R44	ERDS2TJ103T	10kΩ ±5% 1/4W	1	NN-8507/8557
R46	ERDS2TJ181T	180Ω ±5% 1/4W	1	NN-8508/8558 NN-8808/8858
R46	ERDS2TJ470T	47Ω ±5% 1/4W	1	NN-8808P
R47	ERDS2TJ330T	33Ω ±5% 1/4W	1	
R48	ERDS2TJ390T	39Ω ±5% 1/4W	1	NN-8808P
Z1	AEXBO4153J	15kΩ×4 ±5% 1/8W	1	

SERVICE FIXTURES AND TOOLS

EXTENSION CABLES

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
	AT40M004	4 pin Extension Cable	2	Cable No. 16
	AT40M007	7 pin Extension Cable	1	Cable No. 37
	AT40M009	9 pin Extension Cable	1	Cable No. 33
	AT40E006	1 pin×6 Extension Cable	1	Cable No. 9

Note: To be used when repairing the DPC board assembly directly on the oven for easy access of the board.

DPC COMMON CHECKER AND ITS CABLE

Ref. No.	Part No.	Description	Pcs/ Set	Remarks
	ANE600ZK70AP	DPC. Common Checker	1	
	AT30A5040AP	DPC. Checker Cable	1	NOTE

Note: To be used only when DPC common checker is available.